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ABSTRACT

This document explores the evidence that exists worldwide on the impact of girls' education, particularly primary education. It indicates areas in which impact of education is probably occurring, especially in those areas that have received little or no attention in the literature or that have been studies with methodologies that limit what can be learned. The literature review incorporates research conducted throughout the world to gain a broad perspective of the impact of girls' education. By reviewing data from countries in Africa, Asia, and Latin America, the researchers were able to capture and consider the diverse circumstances that influence the impact of education on women, and to identify trends throughout the world. A need exists to focus on studying specifically the impact of educating girls because of the relatively lesser access of girls to education, and equally importantly, the different types of impacts that literate women, as compared to literate men, might have on their societies. The economic role women play in their societies has been long underestimated by the assumptions underlying how economic input is measured. The social roles women play have been underestimated by a narrow definition of what those roles are and how they affect society. This report concludes that girls' primary education results in more active participation by women in the labor force. The positive outcomes of girls' primary education are conditioned by the prevailing economic, social, and cultural environments. (Contains approximately 400 references.) (DK)

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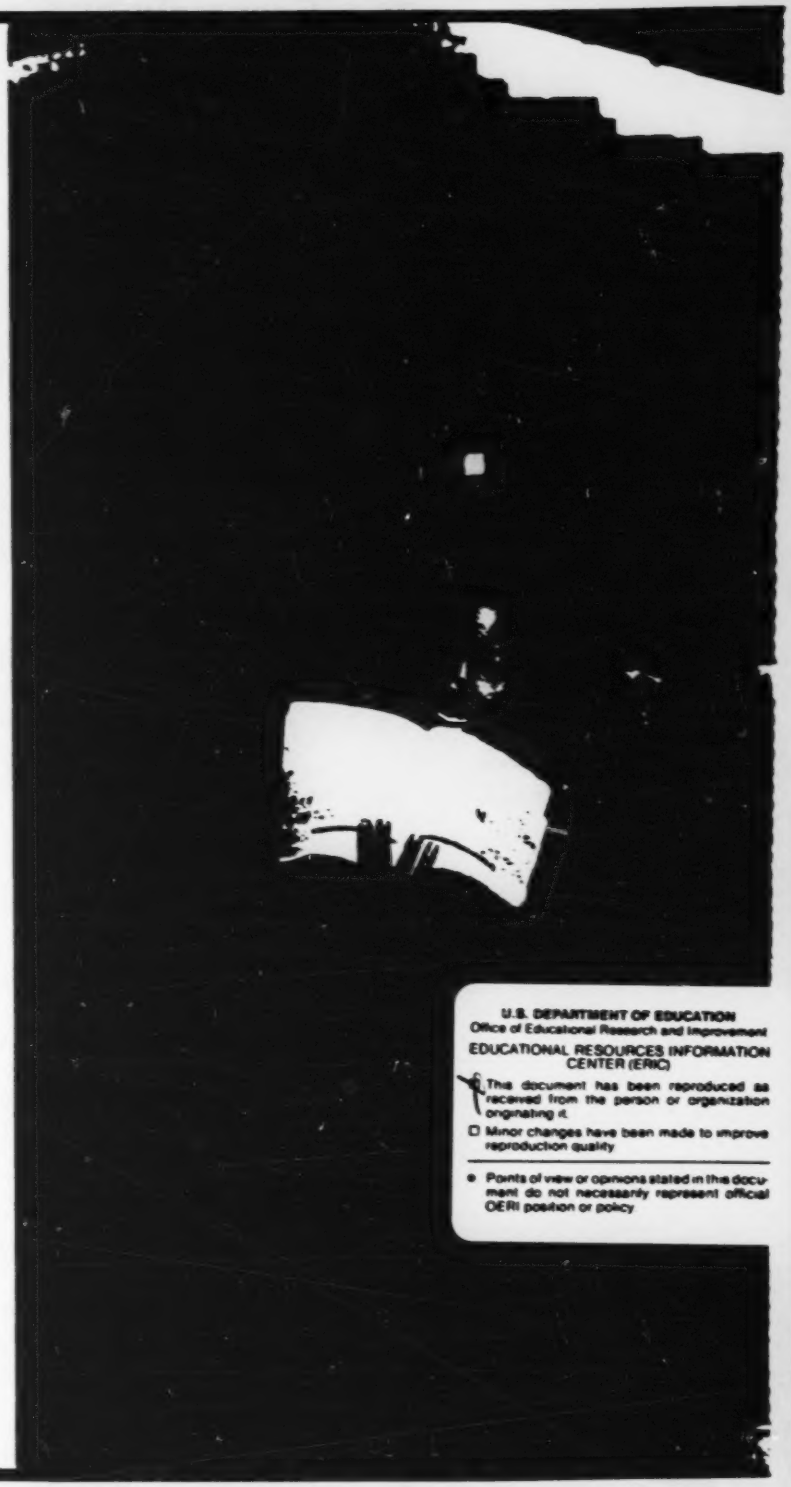
THE ECONOMIC AND SOCIAL IMPACTS OF GIRLS' PRIMARY EDUCATION IN DEVELOPING COUNTRIES



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Advancing Basic Education and Literacy (ABEL) Project

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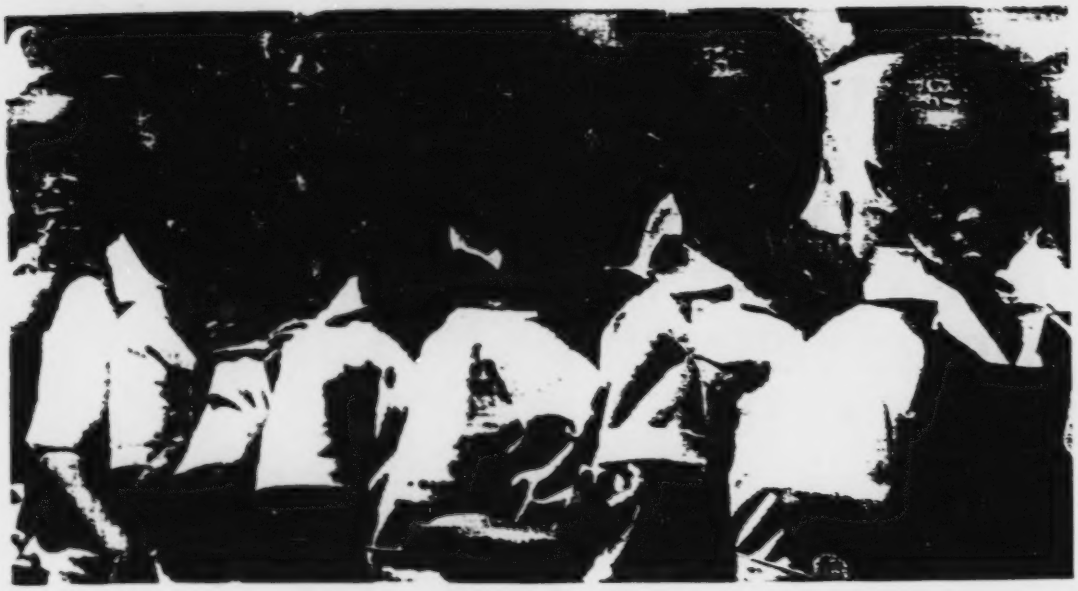

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May Rihani, Associate Director
ABEL

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CHAPTER ONE

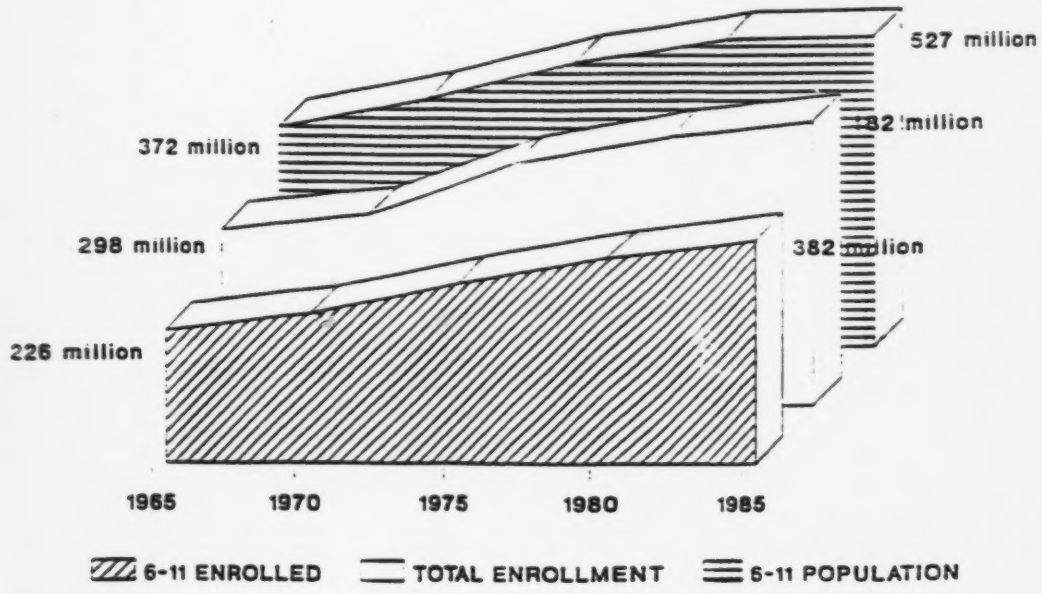
INTRODUCTION

1.1 BACKGROUND

Since the 1960s, one of the principal goals of educational policy in countries in Africa, Asia, and Latin America has been to improve and extend access to education. In the last 25 years, both the absolute numbers and the percentages of children in school have risen in most of these countries. As Figure 1 indicates, primary school enrollments in developing countries increased from 298 million to 482 million from 1965-85. This is indeed a remarkable achievement, reflecting the strong determination of many countries to provide universal access to schooling.

Figure 1

Trends in Population, Primary Enrollments, and 6 to 11-year-old Enrollments in Developing Countries



Lockheed and Verspoor, 1990.

But the need to continue educational expansion remains an imperative. First, during the same 20-year period, the school-age population (6-11 years) also increased from 372 million to 527 million children (Lockheed and Verspoor 1990). Given present population growth rates, the 6- to

11-year-old population will reach 680 million by the year 2000. Moreover, there is evidence of high repetition rates in many countries. These factors worked together so that in 1985, there were 145 million school-age children who did not have access to primary education. In a period of slow economic growth, high population growth rates, and severe budgetary constraints, the questions of education access, expansion, and impact remain a major concern and pose a significant challenge to governments and policy makers.

Even more striking is the wider diversity of experiences among and within the developing countries with respect to educational access for girls. Over 90 percent of out-of-school children in 1985 lived in the poorest countries, and about 60 percent of those children were girls. Nearly 60 percent lived in four of the most populous countries--Bangladesh, India, Nigeria, and Pakistan (Lockheed and Verspoor 1990). Figure 2 illustrates how girls' education continues to lag well behind boys' in most of the developing countries. In the lowest income countries, the primary school enrollment rate of boys was 20 percentage points higher, on the average, than that of girls from 1965 to 1985. In that same year, girls made up only 41 percent of the total primary school enrollment in these countries (King 1990) (see Figure 3).

Although the questions of how to extend education to those children still not in school and how to improve the relevance and quality of education that they receive remain important, recent research has begun to focus on the impact of education on the lives of those children who have received it. Obstacles to female education continue to persist in terms of perceived irrelevance of educating girls, cultural attitudes and expectations about girls, and educational practices utilized within the schools. If these obstacles are to be overcome, it is extremely important to bring together evidence about what the impact of schooling on girls has been. As the resources available for education become increasingly limited in many countries, policy makers need a better understanding of the potential impact of female education in order to make choices about the allocation of those scarce resources.

1.2 DEFINITION OF PAPER

1.2.1 Scope of Project

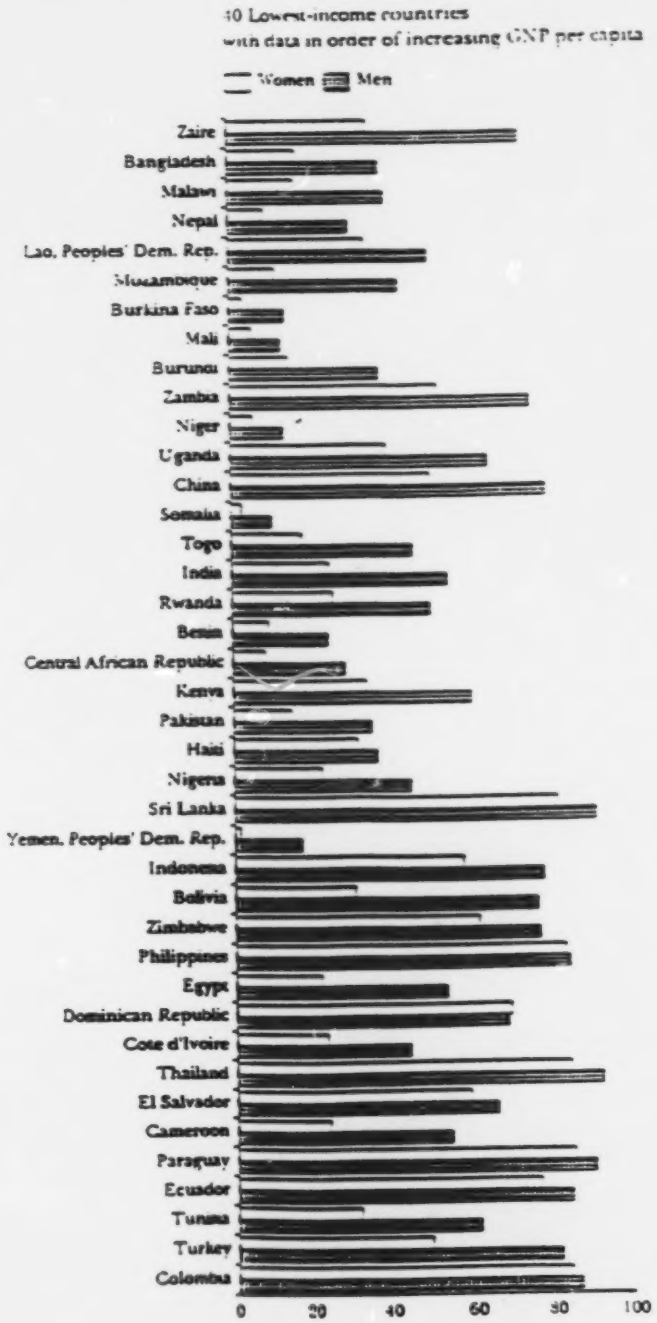
The focus on impact of education has received less attention than access to education not only because access must be established before impact can be evaluated, but also because impact is far more difficult to assess. This paper has two purposes: to explore the evidence that exists worldwide on the impact of girls' education, particularly primary education; and to indicate areas in which impact probably is occurring, especially those areas that have received little or not attention in the literature or that have been studied with methodologies that limit what can be learned.

The literature review incorporates research conducted throughout the world to gain a broad perspective on the impact of girls' education. Originally requested by the Guatemala mission, this review was broadened by the ABEL management committee in an effort to determine if there were trends that existed within and across countries, regions, or cultures. By reviewing data from countries in Africa, Asia, and Latin America, the researchers were able to capture and consider the diverse circumstances that influence the impact of education on women and to identify trends throughout the world.

There are two compelling reasons why there is a need to focus on studying specifically the impact of educating girls. One is clearly the relatively lesser access of girls to education; equally important, however, is the different types of impacts that literate women, as compared to literate men, might have on their societies. The economic role women play in their societies has long been underestimated by the assumptions underlying how economic input is measured. Furthermore, the social roles women play have been underestimated by a narrow definition of what those roles are and how they affect society.

Figure 2

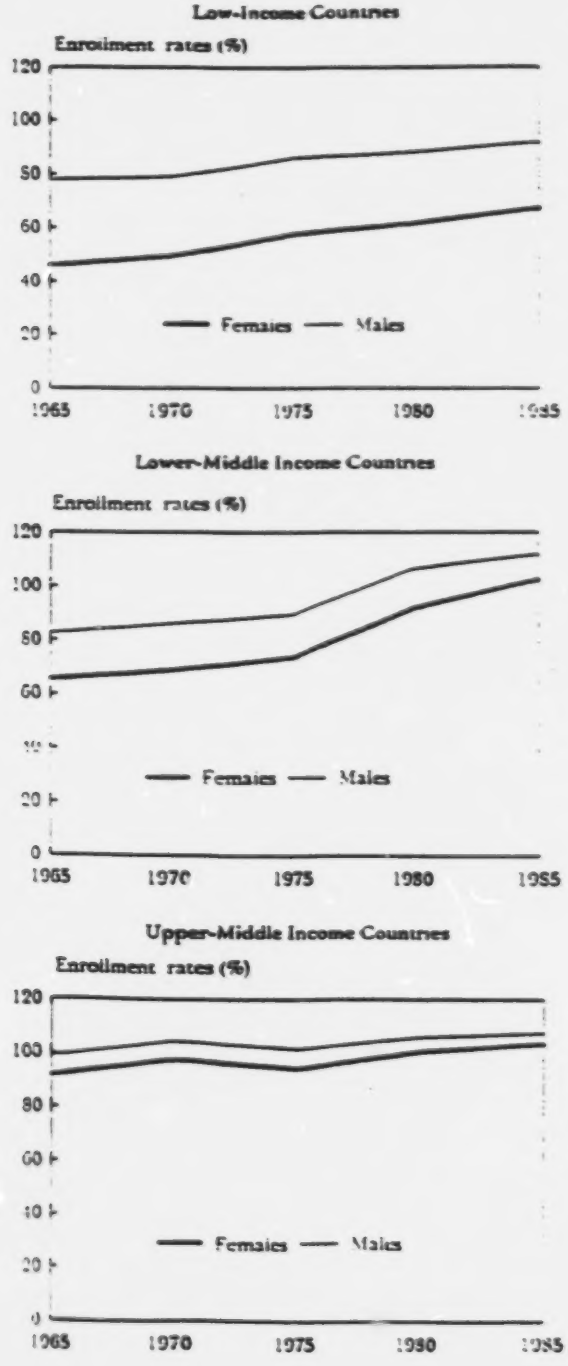
Women's and Men's Literacy in Poorest Countries



Source: United Nations (WISTAT)

Figure 3

Male and Female Primary School Gross Enrollments in the Poorest Countries



Source: King, E.M. 1990.

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Finally, the report focuses on primary education for a number of reasons. First, in developing countries, the largest number of children enrolled in schools are in the primary grades. Thus, the group most likely to benefit from improved education would be the children in this group. Second, although the numbers of children in primary education are increasing, they have not increased enough. Additional evidence concerning the benefits of primary education may provide governments and policy makers the additional impetus to make primary education available to a wider audience, and particularly to girls. Third, although it has been well established that primary education has an impact on areas such as family health and infant mortality, additional evidence suggests that primary education affects other areas such as economic productivity, attitudes, women's status, and power not only at home, but also in the community and the society at large. This report is a careful review of existing data on those effects. Finally, primary education was selected because a number of studies have shown that children retain very little of what they have learned if they leave school before completing approximately 4 years of study. Therefore, the impact of less than 4 years of school would not provide significant information.

1.2.2 Questions Addressed

The rest of the study will address the economic and social impacts of girls' primary education. Four major questions are addressed:

- How does education affect women's productivity in the wide range of economic activities in which they are engaged, namely as members of the labor force, as participants in the informal sector, and as principal producers of home consumption goods and services?

- Under what context(s) and in what way(s) does girls' education increase women's contribution to the national objectives of economic growth and development and to the well-being of their communities (rural or urban), their families, and themselves?

- How does educating a girl affect her in such a manner that she causes changes in her society? What skills are acquired, what attitudes are changed, and what shifts in status and power occur?

- In what contexts and in what ways does educating girls lead to an impact on the larger society? What differences in impact are found according to variations in rural/urban setting, class, or culture?

1.3 POSITIVE IMPACTS

1.3.1 Economic Impact

The economic benefits of education seem to be clear to all. History has shown that the industrialized countries today would not have reached their level of development without the large stocks of educated and trained labor to work with the accumulated physical capital. For example, Peasle's (1965) study of the relationship between growth in primary education and GNP per capita in the period 1850 and 1960 for 34 of the most industrialized countries found that no country achieved significant economic growth without first having attained universal primary education. In a more recent study (from 1930 to 1980) Benavot (1985) concluded that there are significant and positive effects of primary education on economic growth for 110 developed and developing countries.

Even more striking are the significant benefits of girls' primary education. Many studies as

will be described in the economic impact chapter, found that the private and social returns to education for women are (at least) likely to be as great as for men, when returns to education are defined in the narrow sense of monetary earnings. This means that women, like men, receive direct economic benefits from their education in the form of higher lifetime earnings, and society and the community benefit from their higher productivity as members of the labor force. But this is only part of the story. Women's nonmarket work does have a significant and positive economic value and though this is not usually measured for purposes of national income accounting, there is no reason why it should be ignored. Thus, if some allowance is made for both the direct and indirect economic benefits of education to women as independent income earners, to their families, and to the country as a whole, then even the high social and private returns to girls' primary education underestimates the true value of girls' primary education.

1.3.2 Social Impact

Recent findings leave little doubt that women's education does have a powerful social impact. That impact has been measured primarily in terms of women's reproductive roles, focusing upon correlations between girl's education and decreased fertility, increased child health, and decreased child mortality. In addition, there is a growing literature on the positive impact of a mother's education on her children's education. While this report will briefly summarize the most recent findings in those areas, its objective is to go beyond those general impacts and explore the far less researched areas of how education affects women's status and how changes in status lead to additional social impacts.

1.4 METHODOLOGY

This review grew out of a specific request from USAID/Guatemala for a summary of world literature on the relationship between the primary education of girls and social and economic development. To conduct this review, ABEL brought together a team of researchers with particular expertise in international primary and girls' education, economics, and social development.

The first stage of preparation for the report focused upon collecting the relevant literature. A number of diverse strategies were employed, which included:

- a search of a variety of university and specialized library data bases including ERIC, the World Bank JOLIS on-line data base, MUMS, REDUC, SCORPIO, and the data base at the Organization of American States WID Library;
- an exploration of works held by specific libraries such as the International Center for Research on Women, The World Bank, USAID, the American University, the Bunting Institute at Radcliffe College, and the Harvard Institute of International Development;
- a review of papers from unpublished collections such as the Women in Development papers at Michigan State University, the Harvard Institute for International Development, and Creative Associates International;
- a review of papers from conferences such as the International Conference on Worldwide Education for Women at Mount Holyoke College, and the Conference on Women and International Development at Harvard University and the Massachusetts Institute of Technology;

- contacts with embassies to identify in-country research;
- interviews with researchers in the field for suggestions about very recent or unpublished sources of data; and
- a review of current bibliographies related to girls' education in third world countries.

The criteria utilized in selecting the literature to be included in the review were related to the type of information being reported. If a piece of literature was primarily concerned with general, well-recognized impacts of women's education it was only included if it was particularly recent and/or extensive and helped to establish the general areas of impact. The bulk of the literature that was chosen to be included and offered information relevant to the specific questions being asked. On the whole, statistical studies were more frequently used in the economic section of the report, and ethnographic studies more often used in the social section of the report.

The research team participated in several working meetings with a committee of technical experts (see the Acknowledgements) throughout the research period to discuss progress and identify gaps in the literature. Each researcher investigated the impacts of primary education in her own area and then worked with each other in identifying the interrelationships of those impacts. Preliminary findings were reviewed at various stages of the development process by committee members and by women in developing countries.

This report represents the culmination of this development and revision process.

1.5 ORGANIZATION OF REPORT

In Chapter II, the economic impact of girls' primary education is presented. The discussion is divided into three sections. The first presents the major indicators and trends regarding the correlation between girls' education and economic development, particularly in the contexts of the current economic development, and in the context of the current economic conditions facing most developing countries today: economic recession, persistently high population growth rate, growing debt burden, chronic food shortages, and widespread poverty and unemployment. The second section examines and clarifies the multi-dimensional impact of girls' primary education through the various channels: a) labor force participation decision of girls and women; b) shift in the type of labor force participation; c) access to employment in the rural and urban areas; d) labor productivity and wage earnings; e) women's participation, credit access, and entrepreneurial earnings in self-employed and informal sector activities of women; and f) nonmarket effects of girls' education on home production activities. The final section summarizes the discussion and draws conclusions.

In Chapter III, the social impact of girls' primary education is presented. The first and second major sections within that chapter focus respectively on impacts in rural and urban contexts. Each section is further sub-divided to explore the skills that girls gain in primary education, the attitudes changed through that education, changes in their control over their lives as a result of education, and the role of independent income in those relationships. The third major section explores the role of cultural variation on the social impact of girls' education. A series of specific examinations of the interaction of education, cultural patterns, and opportunities for obtaining an independent income in a variety of cultures are presented and analyzed. The summary section discusses the limitations of existing research and offers five general trends that have emerged in the preceding review of literature.

Chapter IV includes conclusions and implications of the research to policy makers. A comprehensive bibliography is included in the Appendix.

CHAPTER TWO

ECONOMIC IMPACT OF GIRLS' PRIMARY EDUCATION IN THE THIRD WORLD

Major interest in the economic value of education was kindled as recently as 30 years ago. The emergence of the human capital approach and the modernization school in the sixties and seventies emphasized the importance of education in both the improvement of the productive capacities or human skills and the transformation of individual attitudes (Schultz 1961, Denison 1962). These then lay the foundation for a more productive labor force and hence for more rapid growth of national output and income. In addition, basic education facilitated the attainment of social policy objectives, particularly in population control, health, and nutrition improvements that are important elements of development.

Since the 70s, several studies have provided aggregate evidence that broadly supports the link between the expansion of basic education and economic growth. For example, using the growth accounting approach to break down a country's economic growth into various contributory factors. Pscharopoulo (1988) found that from 8.6 percent to 17.2 percent of the economic growth rate in developing countries was explained by education (see Table 1). In examining the data for 25 countries, Easterlin (1981) concluded that modernization, particularly, the spread of technology, depended on the learning potentials and motivation that were linked to access to formal schooling. Mingat and Tan (1987) showed that unless a population is literate, other (physical) investment projects may fail.

Economic development (or the improvement of material standards of the population) is not only concerned with economic growth, however; it also involves equitable distribution and meeting basic needs. Several economists who have addressed these issues argue that the expansion of education is a factor in the reduction in the dispersion of earnings and hence can facilitate a more equal distribution of income. Marin and Psacharopoulos (1976) used Mexican data to demonstrate that providing primary education to 10 percent of those without it would make income distribution more equal by nearly 5 percent, compared with the present level of an inequality index. They pointed out, however, that this is based on the assumption that the supply of educated labor is matched with increased demand. Moreover, any increase in productivity of individuals in society is matched by a corresponding increase in the real wage[1].

The remainder of this chapter is organized into two major subdivisions: the importance of gender in education policy making; and the multidimensional effects of girls' primary education. A summary and conclusions are provided at the end.

Table 1

The Contribution of Education to Economic Growth by Region

Region	*Percentage of Growth Rate Explained by Education*
Africa	17.2
Asia	11.1
Latin America	5.1
North America and Europe	8.6

Note: Figures are simply country averages within regions and mostly refer to economic growth in the 1950s and 1960s.

Source: Psacharopoulos, G. (1988).

2.1 Importance of the Gender Dimension in Education Policy Making

Until recently, most studies that relate education to economic development failed to address the gender dimension[2]. This is a serious shortcoming considering the magnitude of illiteracy among women, especially in the Third World, and the persistence of a gender gap in primary educational access in many developing countries, as shown in the Chapter I of this paper. While commendable progress has been made in girls' primary education in developing countries in the last three decades, the goal of universal basic education, especially among girls, has yet to be attained. Over 60 percent of the world's 963 million illiterate are women (UNESCO 1989). Given the persistent high population growth rate in Third World countries, this number is bound to increase unless girls' access to primary education is expanded.

Yet girls and women play significant productive roles and makes substantial contributions in various economic spheres. There is overwhelming evidence that women, in addition to their traditional roles of childrearing and home production, participate actively in farming, manufacturing, marketing, and trade as well as various types of self-employment. Without access to education, women may be deprived of much of their potential ability to contribute to the development of their countries.

This raises two important questions, which are the direct concerns of the rest of the chapter. First, how does girls' primary education affect women's economic contributions in the wide range of economic activities in which they participate? More specifically, what is the process by which girls' education affects women's productivity as members of the labor force, as participants in the informal sector, and as principal producers of home consumption goods and services? The second, related question is: Under what context(s) and in what way(s) does girls' education lead

to increased women's economic contribution to society? Before answering these questions, this section first examines the conditions and circumstances most conducive to positive links between girls' education and economic development.

2.1.1 General Indicators of the Relation between Girls' Education and Economic Development

There is increasing evidence that girls' education is positively correlated with the economic well-being of a country. King (1990) showed the links between women's education and social and economic development by means of plot diagrams. Figure 4 illustrates the positive correlation between primary enrollment rates of girls and GNP per capita (proxy for economic growth) as well as life expectancy, and the inverse relationship between primary enrollment rates of girls and infant mortality rates and fertility rates. King (1990) also recognizes the separate additional effect that any gender gap in gross enrollment rates may have on economic and social welfare. As demonstrated in Figure 5, for any given level of per capita income, countries with smaller gender gaps in education tend to have longer life expectancies, lower infant mortality rates, and lower fertility rates.

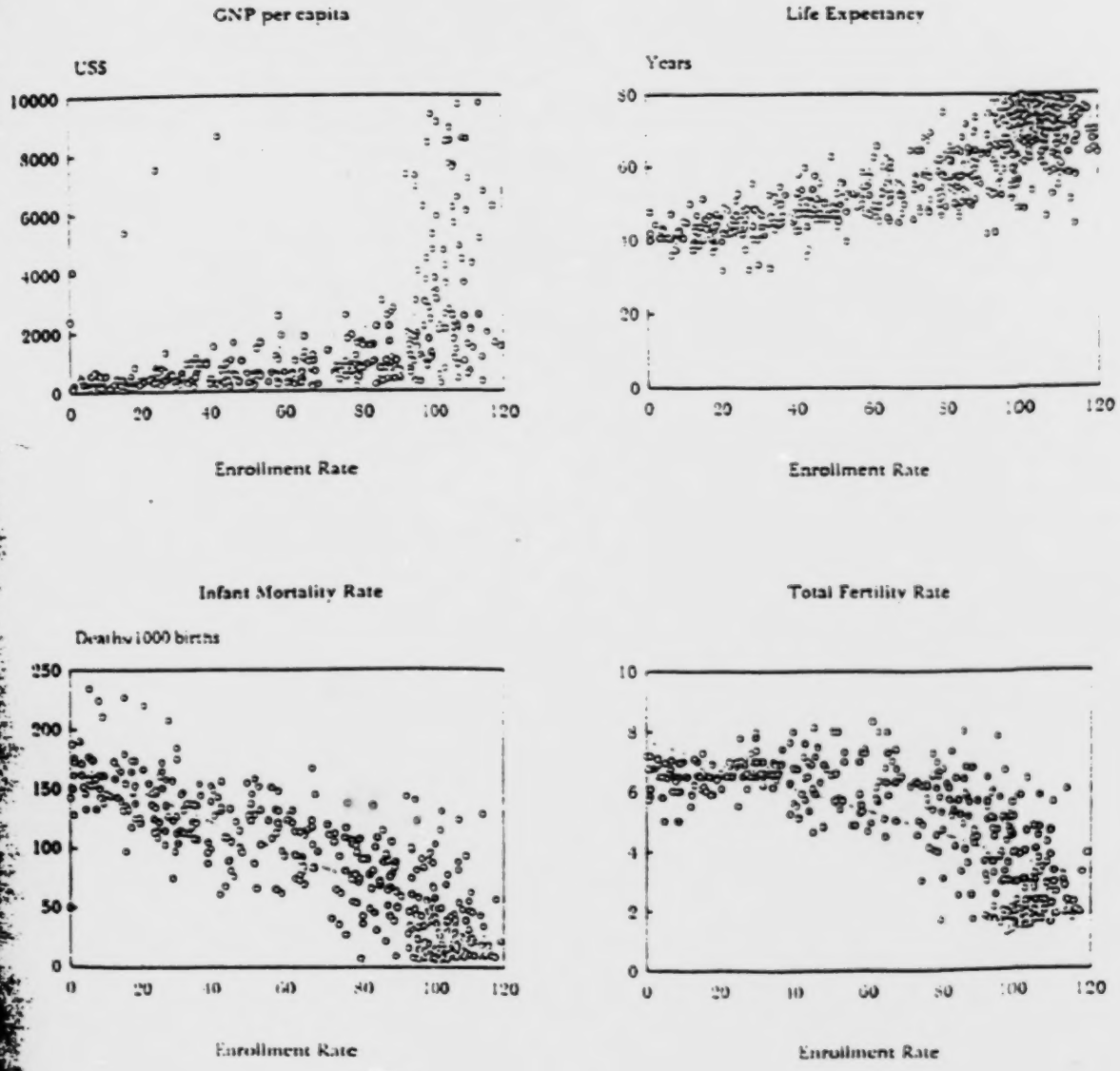
Other evidence is presented by Psacharopoulos (1989) using the private and social rates of return to (education) investment approach. The private or individual rate of return to education generally is assessed by observing differences in the earnings of workers with different levels of education and controlling for other differences that may exist between the groups and then comparing the adjusted earnings differential with the private costs of education[3]. The social rate of return is based on a comparison of the earnings differential with the total resource costs of education. Tables 2 and 3 present the estimates of the average rates of return to education for over 60 countries and yield several noteworthy points:

- The rates of return are higher on girls' education than on boys'[4].
- Rates of return are highest in primary, followed by secondary, and then higher levels of education.
- The more developed the country, the lower the returns to education at all levels.

Benavot (1989) further examined the long-term effects of girls' education on economic growth in comparison with that of boys' education by means of regression analyses. Using a sample of 76 countries from 1965-80 and taking into account the gender differences, he estimated separate regression equations for the enrollment rates of females and males at both primary and secondary levels for various clusters of developing countries. The summary of the results presented in Table 4 show that the primary enrollment rates of both females and males have strong positive effects on GNP per capita. Moreover, the parameter associated with girls' primary education (.0064) is higher than that associated with boys' primary education (.0056). Other regression results at the regional level indicate that the impact of girls' primary education in Africa and other poorer developing countries is significantly stronger than that of boys' primary education. These findings further confirm the results of Psacharopoulos (1988) and King (1990) that the expansion of girls' primary education has a stronger positive effect on long-term economic growth, especially of the poorer developing countries, than that of boys'. The above general trends present a powerful argument for increasing girls' access to primary education.

Figure 4

The Impact of Higher Education on Economic Productivity and Social Welfare



Source: King, E. M. (1990).

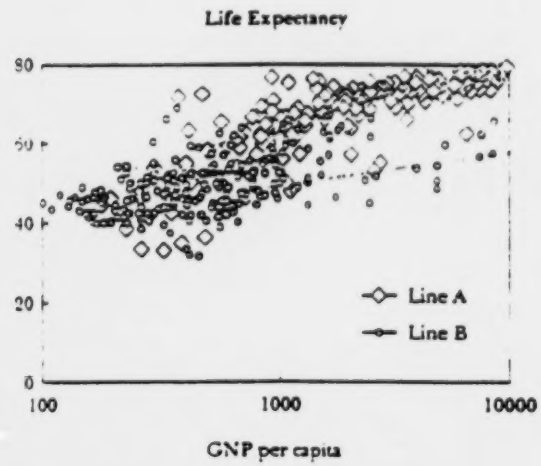
Figure 5

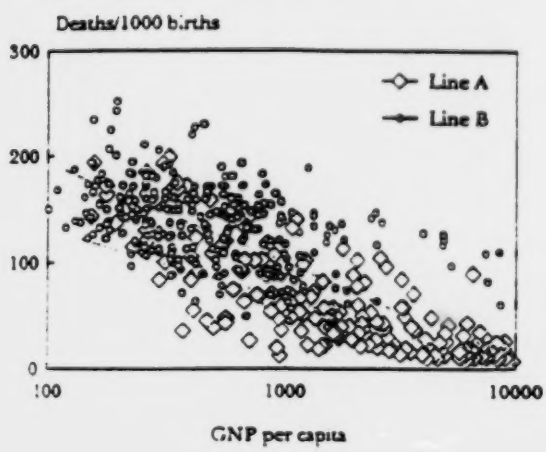
The Gender Gap and Its Effects on Economic Productivity and Social Welfare

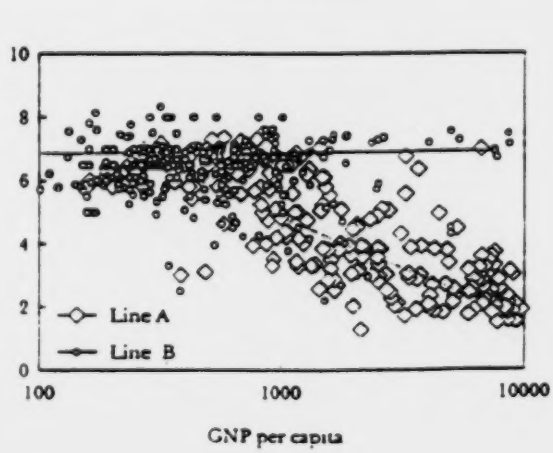
A scatter plot of countries
The gender gap is defined as the ratio of male to female gross enrollment rates.
The horizontal axis is in a logarithmic scale.

Line A: Countries with almost zero gender gap

Line B: Males' enrollment rate at least 40% higher than females'







Source: King, E. M. (1990).

Table 2

The Private Returns to Education by Sex

Sex	*Rate of Return*
Males	11
Females	15

Note: Figures refer to the coefficient of the average year of schooling esumated by means of Mincer s semiogarithmic earnings function in sixteen countries during the late 1970s.

Source: Psacharopoulos. (1988).

Table 3

The Social and Private Returns to Investment in Education by Regional Group and Level of Schooling

	Social Return			*Private Return*		
Region	*Primary*	*Secondary*	*Higher*	*Primary*	*Secondary*	*Higher*
Africa	26	17	13	45	26	32
Asia	27	15	13	31	15	18
Latin America	26	18	16	32	23	23
Southern Europe and Middle East a/	13	10	8	17	13	13
Western Europe and North America	--	11	9	--	12	12

a/ Not available because of lack of a control group of illiterates.

Source: Psacharopoulos. G. (1988).

TABLE 4

Regression Results on the Effects of Female and Male Education on Economic Growth: Findings from 96 Selected Countries.[a/]

Equation[b]		Female Primary	Male Primary	Female Secondary	Male Secondary	Constant	Adjusted R^2
1. World sample	a.	.0063**		.0004		.73	.924
(N = 96)	b.		.0061**		.0025	.77	.924
2. All less developed countries	a.	.0064**		.0033		.65	.859
(N = 76)	b.		.0056**		.0078*	.60	.858
3. Less-developed countries in Africa	a.	.0081**		.0376		-.06	.751
(n = 34)	b.		.0046*		.0306	.36	.726
4. Less-developed countries in the Americas	a.	.0061*		-.0029		.28	.845
(n = 23)	b.		.0055*		.0010	.25	.835
5. Less-developed countries	a.	.0024		.0159		.57	.930
in Asia (n = 19)	b.		.0027		.0123*	.32	.935
6. Poorer less developed	a.	.0053**		.0202		1.28	.643
countries (below $375) (n=39)	b.		.0041		.0060	1.39	.569
7. Richer less developed	a.	.0060**		.0052		.14	.794
countries (above $475) (n=37)	b.		.0076		.0110*	-.10	.855

[a] The dependent variable is the logged per capita GNP, 1985; unstandardized regression coefficients are reported.

[b] Each equation in this table was estimated with the same control and intervening variables as those reported in Table 4 (Equations 3 and 6). To simplify the presentation of results, the parameters associated with these variables are not shown.

*Unstandardized regression coefficient is at least 1.5 times its standard error.
**Unstandardized regression coefficient is at least 2.0 times its standard error.

Intervening Variables
Total fertility rate, 1970
Women's rate of participation in the industrial labor force, 1965
Women's rate of participation in the service labor force, 1965

Source: Benavot (1989)

2.1.2 Role of Women in Economic Crises

The economic realities faced by Third World countries today are forcing many governments to reassess their development efforts and priorities, an action which unfortunately often leads to education cutbacks. The need for expansion of basic education, particularly for girls, has budgetary implications that policy makers are unwilling to address during periods of severe fiscal constraints. In most developing countries the problem of economic recession is compounded by the growing protectionism of industrialized countries and the mounting burden of debt. While some Asian countries such as South Korea, Taiwan, Hong Kong, and Singapore have recovered, countries in Latin America, parts of Asia, and Sub-Saharan Africa continue to experience declines in per capita income and other indicators of economic well-being.

Moreover, the high debt service burden of developing countries and the structural adjustment program of the World Bank has compelled governments to cut back on social investments with long-term gestations such as education. Given the decline in public investment in education, many fear that the progress in girls' primary education may take a step backward. The need to examine the economic impact of girls education, a fact prompted by the same factors that threaten to undermine it, becomes all the more urgent and imperative. What is now deemed a short-term solution may have long-term negative implications[5].

The stagnant growth and high debt burden have pushed the question of food security to the top of the policy agenda. Chronic food shortages, malnutrition, and poverty endure in this period of considerable advances in science and technology. This problem can be alleviated by a more equitable distribution of resources and by providing necessary support for increased productivity of food crop producers.

Although national statistics often do not include them, a growing body of literature shows that women traditionally have been the principal food growers, especially in Africa. Increasing domestic food production is sometimes made synonymous with improving the productivity and incomes of women farmers[6]. Moreover, growing the food crops essential for survival during periods of economic recession is a task that falls heavily on a growing number of women especially in Africa, South Asia, and Latin America.

Yet, women as food producers are often at a disadvantage. Most rural women are illiterate and have less access to resources and opportunities than their male counterparts. Furthermore, misguided agricultural policies such as emphasis on export crops (grown by men and corporations) to the detriment of domestic food production (performed largely by women), have worsened the problem of food security and at the same time have undermined the efforts of women farmers. The question of food security is therefore not simply a matter of increasing production, but also a question of distribution of resources and appropriate policies that provide basic skills and greater incentive to food producers.

Food production is not the only economic activity in which women actively participate. Most women work harder and join the formal labor force in greater numbers during recessions, to compensate for declines in real family incomes. For example, since the beginning of the Latin American debt crisis in 1982, the increase in women's participation in the labor market and in the informal sector has become more rapid than men's. Poor families' success in coping with economic crises, therefore, largely rests upon women's ability to find employment or to have access to resources and thereby earn more income. It is in this context of sluggish economic growth, budget constraints, food shortages, increasing poverty, and rising unemployment that

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women's access to education could make a significant economic impact. The following discussion will examine how this may be the case and under what circumstances this positive effect on economic survival and growth is most substantial.

2.2 The Multidimensional Effects of Girls' Primary Education

The impact of education on the economic well-being of women, their families, and the society at large is both multidimensional and complex. Figure 6 charts the various processes by which this impact is made and indicates the possible channels by which girls' primary education affects women's economic contributions, thereby leading to improved economic well-being of women as individuals and as members of their families, communities, and society in general.

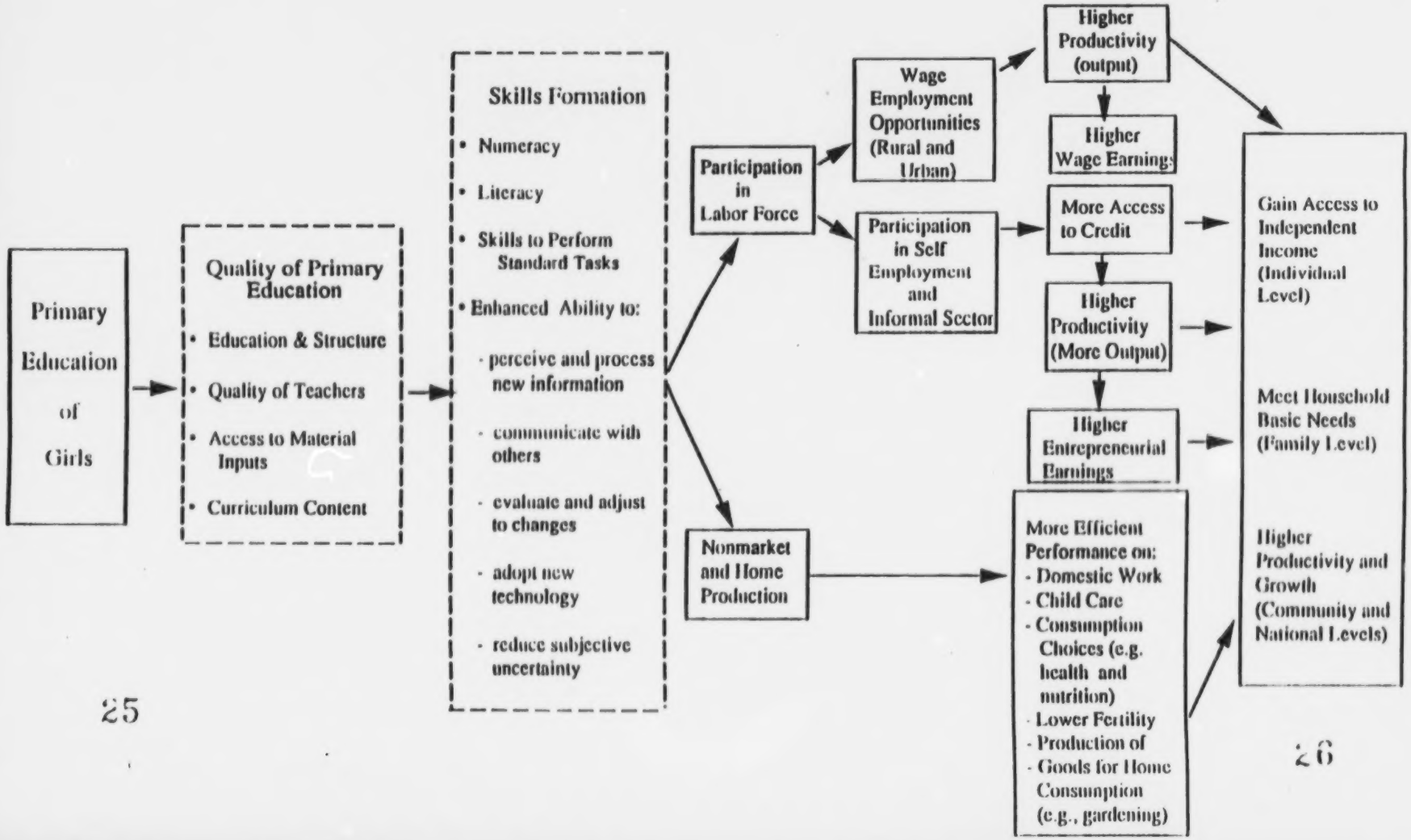
It is important to emphasize that the quality of schooling makes a difference with respect to the skills formation and learning processes of girls. Most economic studies that examine the effects of education do no more than proxy the form and content of education by a simple measure of "years of schooling" since this is easily quantifiable and measurable. But the structure and content of schooling, along with the quality of teachers and material inputs, are crucial in themselves. The higher the quality of education, the more skills and human capital are developed in girls and hence the greater is their potential as productive members of society. Although the whole subject of the quality of education is recognized, and although the quality of education is not uniform across or within countries, these issues are beyond the scope of this study. The findings and conclusions in this study are based on the premise that basic education instills literacy, numeracy, and cognitive skills. In so doing, girls' education may bring about the following economic benefits:

- Women participate more actively in the labor force, whether in rural or urban areas.
- For those seeking wage employment, girls' education can increase the probability of obtaining employment since they have better skills and thus are more able to learn new methods of operation. This can lead to higher output and hence greater productivity, which then leads to higher wage earnings.
- Among those women who are self-employed and/or engaged in informal sector activities, education can increase their access to credit and to vocational and training programs. This leads to higher output and hence higher profits.
- As principals in home production activities, education increases women's production of nonmarketed goods and leads to improved childrearing practices, better family health, greater consumer choice efficiency, and lower fertility.

All of the above emphasize the importance of girls' primary education and outline the positive outcomes that can be anticipated such as higher economic growth, independent sources of income for women, and greater opportunities for meeting their families' needs. The results, however, will depend on the prevailing economic, social, and cultural conditions. The environment is shaped by diverse economic policies, social structures, and cultural norms that may hinder even educated women from realizing their potential as productive members of society. Hence, the actual results may not match the expected outcomes for the economic impact of girls' primary education.

The remainder of this chapter presents the impacts of primary education in four areas: labor force participation; employment opportunities and earning in rural and urban areas; performance in self-employment and informal sector activities; and nonmarket and home production activities.

The Multidimensional Economic Impact of Girls' Primary Education


Primary Education of Girls
Quality of Primary Education
• Education & Structure
• Quality of Teachers
• Access to Material Inputs
• Curriculum Content
Skills Formation
• Numeracy
• Literacy
• Skills to Perform Standard Tasks
• Enhanced Ability to:
- perceive and process new information
- communicate with others
- evaluate and adjust to changes
- adopt new technology
- reduce subjective uncertainty
Participation in Labor Force
Nonmarket and Home Production
Wage Employment Opportunities (Rural and Urban)
Participation in Self Employment and Informal Sector
Higher Productivity (output)
Higher Wage Earnings
More Access to Credit
Higher Productivity (More Output)
Higher Entrepreneurial Earnings
More Efficient Performance on:
- Domestic Work
- Child Care
- Consumption Choices (e.g. health and nutrition)
- Lower Fertility
- Production of
- Goods for Home Consumption (e.g., gardening)
Gain Access to Independent Income (Individual Level)
Meet Household Basic Needs (Family Level)
Higher Productivity and Growth (Community and National Levels)

Conditions that influence these impacts are also discussed. The social factors are discussed more extensively in the next chapter.

2.2.1 Impact on the Labor Force Participation of Women

2.2.1.a Women's Decision to Participate

Many economic and sociological theories predict that education increases women's participation in the labor force. This prediction is premised on the notion that education favorably affects women's willingness and ability to enter the labor market (Mincer 1962). It provides them with the necessary credentials for employment and thus a strong inducement to enter the labor market. Education, therefore, changes women's attitudes towards their own role in the household and in the workplace.

For instance, in countries where the prevailing gender norm is that women are confined at home and exclusively attend to household chores while men work and bring home the bread, primary education can assist in breaking down this traditional gender division of labor. Dorothy Remy (1975), who studied the economic activity of women in Nigeria, commented that "without exception, the women in my sample who have been able to earn a substantial independent income, had attended primary school. Urdang's (1989) study of women in Mozambique provides further anecdotal evidence that the lack of education among women tends to reinforce the gender division of labor. Despite the conscious efforts of the Mozambican government to integrate women, on the state farms women tend to do the traditional "female" tasks that require little or no skills and do not perform traditional "male" tasks such as tractor driving. One of the problems cited is girls' access to primary education. "Those who take the driving course have to have completed third or fourth grade. Yet at this time, they have very few women with these qualifications (p. 105)." The process by which women's aspirations are changed by education are further examined in the social impact section. This chapter reviews the existing evidence regarding the effect of girls' primary education on their labor force participation.

The results of various empirical studies show that the relationship between girls' primary education and labor force participation is not as straightforward as one would expect. Intervening variables such as level of education, age, social customs, economic conditions, and other factors also need to be examined in evaluating the overall impact of girls' primary education on labor force participation.

It has been observed that a U-shaped relationship exists between girls' primary education and labor force participation, with higher participation by those with lower or higher levels of education than by those with an intermediate levels. Using regression and probit analyses, the studies by Danes et al (1985), Castaneda (1986), Behrman and Wolfe (1984), Mohan (1986), and King (1990) show that education and training enhance the contributions of women in the labor market in a nonlinear and nonmonotonical fashion (see Table 5). Although the years of schooling appear to have a very small and negative effect on labor force participation as a whole, educational attainment appears to have a positive, though small, influence on participation in the formal sector, i.e., wage employment, especially when age and marital status are taken into account. For example, Lewis' (1982) study of women's employment in the Ivory Coast shows a strong positive relationship between salaried employment and education. His analysis concludes that among educated females, participation in self-employed petty-trading (informal sector) declined significantly while participation in the formal economy increased.

Table 5

Effect of Schooling on Female Labor Force Participation: Findings from Past Studies in Latin America

Estimated Type and Study	Subsample	Participation Results using -- Schooling-Coefficient	t-value	Schooling Squared-Coefficient	t-value
OLS Estimates					
Danes, Winter & Whiteford, 1985 (Honduras)		0.12	(6.51)		
Casanueda, 1986 (Chile)	Years of schooling:				
	0 years	0.222	(1.82)		
	1-4 years	-0.122	(1.89)		
	5-8	-0.045	(0.9)		
	13+ years	0.208	(2.41)		
Probit Estimates					
Behrman & Wolfe, 1984 (Nicaragua)	Metro area	-0.06	(1.7)	0.01	(3.5)
	Formal sector	0.15	(3.5)	0.004	(1.1)
	Informal sector	-0.05	(1.5)	-0.002	(0.8)
	Other urban areas	0.01	(0.2)	0.01	(2.1)
	Formal sector	0.08	(1.9)	0.01	(2.4)
	Informal sector	0.08	(2.0)	-0.01	(3.3)
	Rural	0.01	(0.2)	0.01	(1.0)
	Formal sector	-0.01	(0.1)	0.02	(1.8)
	Informal sector	0.12	(1.7)	-0.02	(1.8)
Casanueda, 1986 (Colombia)	Age <= 35	0.134	(3.5)		
	Age => 35	0.127	(3.8)		
Cohan, 1986 (Colombia)	Young women, 15-24	-0.008	(2.0)		
	Unmarried women, 25-54	0.014	(2.8)		
	Married women	0.031	(8.8)		
King, 1990 (Peru)	All Peru	-0.036	(-4.88)		
	Lima	-0.029	(-2.37)		
	Other Urban	-0.032	(-2.98)		
	Rural	-0.027	(-1.29)		

Source: King, E. (1989).

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Mohan's (1985) study of women in Bogota, Colombia shows that women with primary education have higher rates of labor force participation than those with no schooling. When data were further classified by age and marital status, Mohan also found that years of schooling for young women (aged 15-24) are not significantly related to their decisions to participate in the labor market. Among married women (25 years and older), however, educational attainment was found to have a significant positive influence on their labor force participation. This strongly suggests that the effects of education may not be felt in the short run; hence education is a long-term social investment.

Age and marital status are not the only factors that determine the flow of economic benefits from education. In Muslim countries, especially in the Middle East, East Asia, and Northern Africa, religious and cultural factors may limit women's economic activities, whether they are educated or not. Restrictions against women's interaction with men and the generally inhibited attitudes toward women reduce educated Muslim women's responses to incentives to work outside the home.

Often factors that affect the relationship between female education and labor force participation are economic policies and gender norms. Clignet's (1977) study of Cameroon and the Ivory Coast and de Miranda's (1977) study of Brazilian women question the commonly held assumption of a positive correlation between education and women's labor force participation by focusing on the concrete social, cultural, and historical factors that influence the levels and forms of labor and education of women in these two regions. Both studies demonstrated that economic growth and industrialization do not necessarily result in high levels of women's labor force participation nor in participation at the same level of equality with men. In particular, de Miranda's analysis led her to conclude that although schooling is the single most important factor that contributes to an increase in women's labor force participation, the potential productivity of women is hampered by the specific types of industrialization and gender stereotyping that create female underemployment and marginalization. Table 6 illustrates by means of distribution of occupation among women how sexual stereotypes interact with marital status and education so that women are concentrated in the tertiary sector. Hence, increased primary education implies only a limited increase in the alternative choices available to women.

2.2.1.b Shift in the Type of Labor Force Participation of Women

None of the studies reviewed have addressed the important distinction between women who are not engaged in economic activities outside the home and women who are already engaged in economic activities but who are not recognized, statistically, economically, and socially as active producers. Almost all of the studies previously mentioned presume that women who decide to join the labor force due to education are nonworking women who are dependent on their husbands or parents for their needs and whose work exclusively involves home production activities such as household chores and child care. While this may be true for women particularly in the middle and upper classes, studies show that this is not the case for the majority of women, especially the poor. This is even more apparent during periods of economic recession when women work in marginal sectors and are not counted as labor force participants.

Women in the rural areas often work either as producers of nonmarketed food crops or as unpaid family labor (see Table 7). Their contribution to production and participation in the labor force are neither counted nor recognized. In South Asia, women account for more than a third of the agricultural labor force and work long hours in both rural wage employment and household production, often longer than those worked by men (Safilios-Rothschild 1983). In rural Bangladesh, the security and productivity of rural women was tied to family ownership of land

Table 6

Years of Schooling and the Distribution of Occupations of Brazilian Women by Marital Status, 1970

Occupation	*Married Women* Mean Years of Schooling	*Single Women a/* Mean Years of Schooling
Farm laborer	1.42	2.27
Domestic maid	1.87	3.28
Industrial worker	3.19	4.03
Others	3.91	4.21
Commercial worker	4.20	5.34
Personal services	4.58	5.15
Nurse	5.83	5.65
Clerical worker	7.79	7.92
Elementary teacher	9.14	9.43
Secondary teacher	11.42	11.94
Professional worker	13.71	13.28

a/ Living with parents.

Source: de Miranda, G.V. (1977).

Table 7

Allocation of Working Hours of Women in Selected Developing Countries

Country	*Hours Spent in Home and Subsistence Production*[a/]	*Hours Spent in Market and Agricultural Production*[b/]	*Total*
AFRICA			
Botswana	5.6	.6	6.2
Burkina Faso	5.7	4.1	9.8
Cameroon	5.7	3.9	9.6
Ivory Coast	5.1	6.9	12.0
Sudan	10.7	3.0	13.7
Tanzania	5.3	5.7	11.0
ASIA			
Bangladesh	6.7	5.0	11.7
India	4.0	2.0	6.0
Malaysia	10.0	1.8	11.8
Nepal	4.3	7.2	11.5
Philippines	7.4	.9	8.3
LATIN AMERICA			
Chile	5.4	7.0	12.4
Peru	n.a.	8.8	n.a.
Uruguay	5.2	6.9	12.1
Venezuela	n.a.	n.a.	9.3

a/ Home and subsistence production is generally defined as food processing and cooking, housework, child care and health care for the family, as well as agricultural production that sustains the family.

b/ Market and agricultural production is defined as activity designed to produce income for the household, such as handicrafts production, marketing, and either paid or unpaid labor in agricultural production directed toward market sales.

Source: Buvinic and Yudelman, 1989.

(McCarthy and Feldman 1988). Those engaged in agriculture are often as unpaid family workers or as casual laborers working seasonally rather than year-round or as lowly-paid workers.

In those cases where women are already engaged in production, the question is whether primary education plays a key role to their integration into the mainstream labor force and/or shift from low productive activities to high productive activities. The paucity of studies on this question of labor force participation does not prevent us from stating the following hypothesis: Girls' primary education establishes the basic skills and opens up options on a wider range of economic activities. Literacy, numeracy, and cognitive skills increases women's ability to take part in various development efforts and related vocational and training programs. Hence, it may lead to shifts in women's labor force participation from marginal economic activities to more productive ones.

But the extent to which girls' education brings about this shift in the pattern of labor force participation would depend on several important factors that allow for maximization of women's productivity. One is their access to complementary resources such as land, credit, and technology. The other is the absorptive capacity of the labor market especially in highly productive enterprises. For instance, there is accumulating evidence that primary education helps increase farm productivity. In India, a study has shown that literate farmers produce higher yields per acre (McGrath 1979). This is because better educated farmers have more access to agricultural and cooperative training, seek more contact with agriculnural extension workers, and are better able to implement new ideas and to use existing facilities. Derryck (1978) in fact, provides anecdotal evidence suggesting a strong link between primary education and nonformal training programs. Jarousse and Mingat (1990) cited various analyses of development projects that show that the success of the success of the projects was positively affected by adult literacy level in the locale of the project. The effect of primary education, in this case, is in broadening the horizons and in raising the aspirations of farmers. It provides the individual with some familiarity with modern concepts and institutions. When an educated farmer settles down to farming and develops some commitment, he/she is likely to be a more aggressively innovative farmer (Hopcraft 1976).

There also is evidence that he/she is likely to use modern farming inputs more intensively, because basic education provides farmers with the minimum cognitive skills required to successfully adopt new technology. Basic skills therefore are a necessary condition if further nonformal training is to be successful. Heyneman (1983) illustrates the link between irrigation-based farming and education (see Figure 7). The most elementary techniques require little or no schooling. But the second level (B) includes a single modern input such as fertilizer whose utilization is substantially improved if the farmer has rudimentary literacy and a knowledge of addition, subtraction, and division. At higher levels, when several modern inputs are included simultaneously or the farmer must use his/her own initiative, an understanding of mathematical procedures and rudimentary knowledge of some chemical and biological properties are required.

A recent survey of 18 economic studies by Lockheed, Jamison, and Lau (1980) examined the effects of farmers' educational levels and exposure to extension services on productivity. Using 37 data sets, the authors applied the production function approach to estimate the marginal product of education. They reached the conclusion that farm productivity increases on the average, by 7.4 percent as a result of a farmer's completing four additional years of elementary education. The histogram in Figure 8 summarizes these findings with respect to the increase in output attributable to farmers' having at least 4 years of basic education. While Lockheed et al (1980) concluded that education has a positive impact on agricultural productivity, this varied widely from country to country. The variation of impact is attributed to the differences in the stage of economic

Figure 7

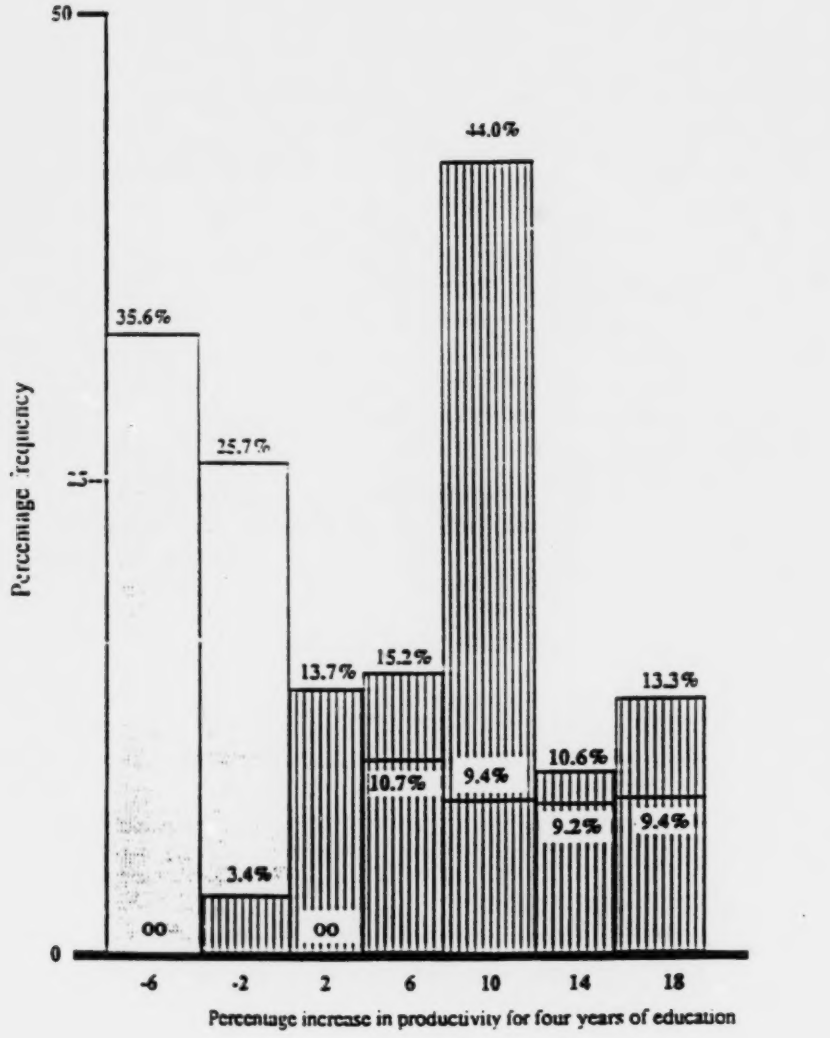
Four Levels of Agricultural Technology and Their Learning Requirements

Farmer-entrepreneurs Technology Level	*Agricultural Inputs*	*Minimum Learning Requirements*
Level A: Traditional farming (*Techniques passed from parent to child*)	Local varieties of seeds and implements.	Addition and subtraction–not necessarily acquired through formal education.
Level B: Intermediate technology	Small quantities of fertilizer.	Addition, subtraction, division, and rudimentary literacy.
Level C: Fully improved technology	High-yielding varieties; proven seeds; seed rates/acre; fertilizer rates/acre; and pest control rates/acre.	Multiplication, long division, and other more complex mathematical procedures; reading and writing facilities; and rudimentary knowledge of chemistry and biology.
Level D: Full irrigation-based farming	All above inputs; tubewell access during the off-season; and water rates/acre.	Mathematics, independent written communication, high reading comprehension, ability to research unfamiliar words and concepts; elementary chemistry, biology, physics; and regular access to information from print and electronic sources.

Source: Heyneman, S.P. (1983).

Figure 8

Effects of Schooling on Agricultural Productivity: Study Results Grouped by Modern and Nonmodern Samples



Source: Lockheed, M.E., D.T. Jamison, and L.J. Lau (1980).

development and environmental conditions as important determinants of the effects of education on production (p. 129). The mean increase in output for 4 years of education under traditional conditions was 1.3 percent compared with 9.5 percent under modernizing conditions. This supports Schultz' (1975) argument that education is likely to be effective principally under modernizing conditions[7].

None of the above mentioned studies take into account the gender dimension of educational effect. This omission is both unjustified and short-sighted given the significance of women's economic contribution in rural areas. Deere (1975) argued that new techniques based primarily on know-how, such as application of fertilizer or the use of improved seed varieties, obviously do not carry an inherent gender designation for utilization. But to a certain degree, some, if not all, of these tasks are traditionally done by women and children as unpaid farm assistants or as food producers. Hence, the acceptance and use of improved agricultural methods do depend on girls' education. But in most cases, women are excluded in training programs, have almost no role in farm decision making, and have little access to modern technology as well as to land and credit. Unless women have equal access to these inputs the productivity potential provided by primary education may not be realized at all. As Bowman (1980) argued, "Once a foundation in basic skills is assured, what education can and will contribute to economic development in developing countries may depend as much on economic as on strictly educational policies" (p. 14). This emphasizes not only the point that women respond to opportunities, but also the fact that the effective utilization of any human capital requires resource redistribution policies that complement those in education.

2.2.2 Impact on Employment Opportunities for Women

While it may be the case that education has a positive effect on labor force participation, the question is whether this has translated to higher employment rates for women. This section examines whether women with primary education, as compared to women with no primary education, have a higher probability to actively seek employment and whether they actually get paid employment.

There are three major concerns regarding the educational effect on women's employment opportunities. These concerns are reflected in the following questions:

- Does education increase women's access to jobs in the rural and urban areas?
- To what type of employment opportunities do educated women have access? and
- What is the impact of girls' primary education on women's productivity in the work place as reflected in the level of wage earnings?

These issues are discussed separately in the following subsections.

2.2.2.a Employment Options for Educated Women in the Rural Areas

The significant roles women play in Third World agriculture have been fairly well documented. Women make important labor contributions to both food and cash crop production as well as in nonfarm activities. Yet, women's lack of independent remuneration and source of income, combined with the changes in aspirations and attitudes that were discussed earlier, tend to push women to seek employment in the formal labor market. Anecdotal evidence suggests that in rural

areas, employment opportunities outside the farm are limited and do not appear to be expanding, whereas the total number of women competing for work is increasing (McCarthy and Feldman 1988). Of the limited employment opportunities available, wage employment in plantations or commercial agriculture seems to be the most prominent. The educational effects on the probability of getting wage employment in commercial agriculture are examined below.

Clignet (1977) found that among younger women in Cameroon and the Ivory Coast, the relationship between girls' education and employment tends to be curvilinear: both women with no education and those with postprimary education are the most likely to find jobs. The former frequently are employed in unskilled agricultural work, notably in banana plantations, before growing their own cash crops or in various service activities such as domestic work. In short, there is no linear correlation between formal schooling and employment.

A study of employment patterns in Malaysia's rubber and tea plantations indicates a rising trend of female workers in the rubber and tea estates. The highest paid workers, however, are the Mandores or supervisors, who are all males. Women tend to occupy the lowest paid jobs--weeding and to some extent tapping. The latter, which pays 30 percent more than weeding, requires a considerable degree of skill that can only be obtained from experience. Educational attainment therefore does not determine access to employment nor the level of wages received by the plantation workers (Heyzer 1986). In fact, a case study prepared by Heyzer (1986) of a Malaysian rubber plantation estate shows that women who become full-time estate employees are those who have access to child labor to help in the weeding activities and on the worksites. In other words, a woman's position in the labor process is tied to the use of unpaid child labor as a means to increase the level of subsistence for the household and not on her skills or level of educational attainment. Unless government policies promote agricultural development, support rural-based industries, and address the gender discrimination in hiring female workers for semi-skilled and skilled jobs, the absorptive capacity of the agricultural sector will not catch up with the increased supply of educated female workers.

Given the limited employment opportunities in the rural areas, girls' primary education has two other effects. While other factors such as proximity to urban centers contribute to the diversification of the economic base, rural men and women are less likely to venture into new economic activities without basic education (IIEP 1981). Rural women are not limited to farm activities; in fact it is well documented that they engage in various income-generating activities such as trading and other microenterprises. A 1975 Bangladesh study shows that villages with a high level of literacy have a much greater degree of income sources. Villagers practice a combination of agriculture, small commerce, services, or an independent profession, and these additional activities supplement agriculture as sources of income.

The other major effect of girls' primary education in rural areas is an increased propensity to migrate. Formal education is cited in many migration studies as an important mobilizing factor associated with rural exodus. A Nigerian case study concluded that after primary school about 60 percent of village children leave their homes for the towns and cities (International Labour Office Mission 1967). Caldwell et al (1968) pointed out in his study of migration in Ghana that formal education is one of the most reliable determinants of migration from the rural areas to the city, and this holds true for females as well as males. A 1978 UNESCO study confirms that women are increasingly prominent in rural-to-urban migration (Orlansky and Dubrovsky 1978, Youssef et al 1979).

Several theories have provided alternative explanations and rationale for the increased propensity among educated women to migrate. One strand in the literature cites the lack of employment opportunities in rural areas. Thompson (1981) cited, for instance, that in 1966 only

90,000 of the 150,000 children leaving school at the end of primary education could hope to obtain further education or employment of any kind. This demonstrates the extent and rate of growth of unemployment among young school leavers (Christian Council of Kenya 1966). As Safilios-Rothschild (1979) pointed out, to the extent that women's increased access to formal education is not accompanied by increased access to agricultural training, rural women's formal education may led to their migration to the cities.

Urbanization is the other side of the 'push-pull' effect in migration theories. Rapid urbanization has been an inevitable reality in most developing countries and rural women must have the skills developed through formal elementary education to aid them in surviving urban settings, especially as they look for jobs (Boserup 1970, Caldwell et al 1982). The Behrman and Wolfe (1984) study of female migration patterns in Nicaragua explores the determinants of migratory flows using regression analyses. They concluded that returns to schooling (as measured by women's expected wage) are not significant for rural regions but are significantly positive for urban regions, which implies slightly increasing returns to schooling for women employed in the urban sector. In another study, Behrman and Deolalikar (1988) estimated separate female and male wage functions in the rural and urban areas of Indonesia. They concluded that the impact of age and education is significantly higher for females in urban areas than in rural areas, and the marginal schooling returns favoring females are significantly larger for every schooling category. It seems, therefore, that among educated females, the higher the rural-urban wage differential and the more concentrated the industries in urban centers, the greater is the propensity to migrate.

Another explanation of the impact of education on migration patterns lies in the structure and content of the educational process itself. Kiros' Ethiopian case study (Berstecher 1985) pointed out that school curricula tend to look with disdain on manual work and prepare students more for white-collar and urban-based activities than for participation in agriculture-based activities. In the particular district analyzed by Kiros, over 80 percent of children who had been to school chose not to become farmers, and of those who had become farmers, most had attended only up to the fourth grade.

The preceding discussion examined the impact of primary education on rural women's economic participation. Undoubtedly, primary education is a major factor in bringing about changes in the economic roles and status of rural girls and women by affecting both the rates and types of labor force participation. But the wide range of its impact does not allow for easy generalizations. Any effort to explain the relationship between girls' primary education and agricultural productivity needs to take into account the broader economic and social environment which determine the direction of change. The preceding section showed that age, marital status, extent of recognition of women's economic contribution, cultural norms, structure of the labor market, degree and effectiveness of rural development strategies to disperse and attract industries to the rural areas and to promote broad-based employment, and structure and content of school curriculum are important factors in determining the extent to which primary education leads to increased women's productivity in rural areas.

2.2.2.b Impact on Employment Opportunities for Women in the Urban Areas

The preceding discussion has shown that the effect of education on both women's decisions to participate in the labor force and to migrate from rural to urban areas leads to rapid growth in the supply of educated female workers in towns and cities. This section examines whether primary education has increased the probability that women will obtain waged employment in the urban areas.

Lewis (1982) looked at the determinants of women's employment in the Ivory Coast and concluded that there is a strong positive relationship between salaried employment and education (see Table 8). In fact, the pattern that emerges is: the higher their education status, the less women are "inactive." As they attain higher education, women's participation in commercial or self-employed, petty trading declines significantly while their participation in formal wage employment activities increases.

The correlation, however, may not be as strong in other economic settings. For example, in the Lewis study the data were limited to women enrolled in the French system of education, which excluded poor women. Secondly, the situation in the Ivory Coast at the time of the survey approximated full employment, at least for the strata of women in the sample. In fact, economic and social conditions were such that there was a great demand for educated Ivorian workers and increased social pressure on women to avoid financial dependency on their spouses and families. Such conditions may not prevail, however, in many developing countries, particularly during the eighties decade. In an earlier article, W. A. Lewis (1962) pointed out that educational systems can very easily produce more educated people than the economy can employ if the educational system produces people with the wrong kind of skills (or wrong attitudes, i.e., preference for white-collar jobs) or if the jobs in which they can use the newly learned skills are not available. The structure and capacity of the labor market in developing countries are therefore important variables in determining the educational impact on women's employment opportunities.

Several studies pointed out the contradictions resulting from rapid educational expansion and slow-growing wage employment. Evidence of widespread unemployment among school graduates--because of their inability to find employment at an appropriate level or their unwillingness to work in lower status jobs--has been widely discussed (Standing 1978, Colcough 1982, Irizarry 1980) These trends, as Benavot (1989) stated, imply that the employment impact of girls' education may be far more problematic and contradictory than initially assumed. In another study, Harbison (1967) argued that unemployment is associated with unbalanced economic progress. This urban-industrial emphasis in economic development has been, by its nature, unable to absorb the potential labor force, especially women.

Nevertheless, at the least it can be argued that women's education increases the *probability* that they will get jobs over those women without education. This may be due to better credentials, more skills, or both. As access to basic education expands and more girls are educated, however, another question arises: Does education increase the chance that a woman will get paid employment over a man of the same educational background? Research suggests that the chances are largely influenced by the degree of gender discrimination in the labor market. A study by Collier, Radwan, and Wangwe (1986) of rural Tanzania, found extreme discrimination in access to nonfarm-wage employment, which has the highest returns. With some primary education, a woman has only one-fifth of the chance as that of a man with the same schooling level of getting paid employment. With completed primary education, a woman had only a quarter of a chance as that of a man with the same schooling level. But a man with a secondary education has a 3-in-4 chance of such employment, whereas a woman of the same age has only a 1-in-4 chance. This decline suggests that discrimination may apply differentially at different levels of education. Increased access of girls to education may reduce the aggregate incidence of discrimination, but does not entirely eliminate it.

In another study, this time of Brazilian female and male workers, Merrick and Schmink (1983) reported that as the Brazilian economy expanded its industrial sector, the urban labor demand also expanded. In the Brazilian cities women were initially drawn to textile factories, however, they were absorbed less and less into the work force when the industry was transformed as a result of

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Table 8

Percent Distribution of Women in Ivory Coast by Employment Status and by Educational Level[a/]

	No Education	*Some Primary*	*Some Secondary*	*University or Professional*	*Total*[c/]
			(in percent)		
Inactive	44	55	23	2	36
Commercial[b/]	53	20	4	5	32
Salaried	2	21	57	71	25
Student Apprentice	1	4	16	22	7
Total	100	100	100	100	100

a/ Refers to French education only.

b/ Refers to self-employed petty traders.

c/ N=873.

Source: Lewis, B. (1982).

technological investment. Similarly, women's participation in the food and beverage processing industries declined from 2.7% to 0.3% in the period 1960 to 1970. The proportion of women in overall manufacturing fell from 18.6% to 11.0%.

Increased women's participation in paid employment due to improved educational access does not signify the absence of biases regarding gender roles and is dependent on the type of jobs women tend to occupy. Many occupations are identified with one sex or the other but the range of activities considered appropriate for women is limited. In Ghana, for example, of the 72 industries identified in the 1970 census, females constitute over 80 percent of the employees in only 4, whereas 26 industries are more than 95 percent male dominated (Steel and Campbell 1982). On the whole, women's employment and share in the modern sector grew rapidly, but a much higher proportion of the female labor force worked only part time (31 percent in 1970).

There are, however, certain types of industrial expansion that have led to increased employment of women. Export-oriented industrialization has taken off in Latin America, Asia, and the Caribbean during the last two decades. As a result, young, single women or married women without children have been mobilized into the industrial work force. The creation of export processing zones, or free trade zones in particular, facilitated this growth. The most important industries in these special zones are textiles, clothing, and electronics, which are not only labor-intensive but require cognitive skills, dexterity, and perseverance in undertaking monotonous tasks. Given the level of skills required for these jobs and the increased supply of female labor, educational attainment has become an employment prerequisite. The Safa (1984) study of female workers in Puerto Rico found that industrialization and migration have intensified the demand for educated, female labor. Puerto Rico, as well as Mexico, Singapore, and Malaysia, fostered an export-led industrialization based initially on labor-intensive industries.

In the border municipalities of Mexico where there has been rapid growth of maquiladoras, the establishment of assembly plants that are subsidiaries of large US-based corporations employ mostly women. The average education level for Mexican workers in general is 3.8 years (UN, 1977) but the study by Fernandez-Kelly (1982) of women workers in the border area of Ciudad Juarez shows that most of them (55%) have completed at least 6 years of schooling (see Table 9). The average level of schooling is even higher for electronics industries (8 years), compared to the textile or apparel industries (6 years). Many (20 percent) even have taken courses in vocational schools where they have acquired typing and accounting skills that are seldom used.

The electronics assembly plants such as RCA Componentes de Television, Electro Componentes de Mexico (General Electric) and Conductores y Componentes Electricos (General Motors) are located in modern industrial parks and have invested in improving the skills of their workers. As such, their employment policies tend to be highly selective in nature.

Table 9

Schooling Level of Maquiladora Workers in Ciudad Juárez, Mexico by Manufacturing Branch

Number of Years of Schooling	*All Industries (%)*	*Electronics (%)*	*Apparel (%)*
Less than 6	5	3	8
6	55	38	59
7-11	40	59	33
Total	100	100	100

Source: Fernandez-Kelly, M. P. (1982).

"Workers must have a relatively high level of schooling (at least completed 8 years), they must be young, single, and childless... Some plants go as far as to establish a maximum level of schooling as a requirement for applicants. The numerous requirements listed above seem out of proportion with the nature of the operations performed in these plants and with the low wages earned by workers. But they can be implemented due to the abundance of women searching for jobs in an environment in which unemployment and underemployment combined reaches 30 percent" (Fernandez-Kelly 1982, p. 105).

The textile garment manufacturing plants, in contrast, have low capital investments and tend to employ workers whose position in the labor market is weaker. The general profile of these workers indicates that they have a lower level of schooling for unskilled and semi-skilled assembly operations. In Singapore, all the young women workers in the clothing manufacturing industries have had some years of schooling (at least 4 years of primary education). The firms use formal schooling as a recruitment strategy because schooling usually differentiates people who remained in the educational system, which encourages conscientiousness and discipline, from those who have not (Heyzer 1986). Employers think that workers who have at least some years of schooling are better able to bear the long hours of meticulous, tedious, and monotonous work than workers who have had no schooling[9]. Heyzer (1986) also found that electronics firms have higher educational requirements than textile industries in all the Southeast Asian countries. While the textile industry recruits young women with some primary schooling, the electronics industry demands at least some secondary schooling. Increasingly, electronics workers are expected to have completed their secondary education, that is, they are expected to have 8 years of schooling.

Yet, while export manufacturing has served to integrate women into the mainstream industrialization efforts, its impact on the status of women in the family and in the larger society is contradictory (Safa 1984). "By taking advantage of women's inferior position in the labor market, export manufacturing may reinforce their subordination through poorly paid, dead-end jobs" (p. 27). Fernandez-Kelly (1982) observed that traditional attitudes that women are only 'supplementary wage-earners' persist so that they are paid wages below their productivity levels. In addition, the organization of the labor hierarchy makes occupational advancement a near impossibility for women. Technical and supervisory positions are filled almost entirely by men."

Moreover, there are issues and concerns regarding the working conditions in many of these factories. The speed of production and the health and safety of female workers in these export-oriented industries have been questioned because of deplorable working conditions and their unknowing exposure to hazardous materials, for example, radioactive substances and carcinogens such as methylene chloride. It is not surprising therefore that a significantly high number of children born of these female factory workers suffer from birth defects.

A recent Inter-American Commission of Women (1989) study shows that these gender biases are not only confined to the manufacturing sector, but also have wider relevance for the entire labor market. Table 10 shows that in the formal sector, women are concentrated predominantly in occupations traditionally regarded as "proper to women," which are generally less productive and lower paid than the jobs where men predominate. Nearly half of all employed women work in activities connected with community, social, and personal services, which includes mainly domestic help.

Table 10

Patterns of Women's Employment in Latin America by Industry[a/]

Industry	*Employed Women (%)*	*Women/EAP (%)[b/]*
1. Agriculture	2.9	6.5
2. Mining	0.2	10.5
3. Manufacturing	17.8	31.4
4. Electricity, Gas, Water	0.4	14.8
5. Construction	0.6	2.7
6. Commerce	22.9	36.7
7. Transportation and Communications	1.8	9.3
8. Banking, Insurance, Real Estate	5.9	35.9
9. Community, Social, and Personal Services	46.8	53.2
10. Insufficiently specified	0.7	24.7
Total Employed	100.0	31.3
Mean Total		

[a/] Data are for Barbados, Colombia, Costa Rica, Chile, Panama, Uruguay, and Venezuela. The figures are for 1987, except for Uruguay (1985) and Panama (1986).

[b/] The percent is based on the percentage ratio of employed women to total economically active population (EAP).

Source: Inter-American Commission of Women (1989).

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The type of employment open to women, therefore, determines how the skills developed by basic education are used. The preceding section also shows that education has a significant positive effect on employment opportunities if there is a corresponding increase in the demand for skilled labor. During periods of economic contraction and rising unemployment education may only have a limited effect. The expansion of labor-intensive industries is not the only determinant of the impact of girls' primary education on industrial growth, however. The persistence of sexist attitudes in hiring and promotion also limits the potential of educated women. Moreover, working conditions are crucial to the long-run productivity of the labor force. The unhealthy and unsafe environments in which women workers operate may actually shorten their productive lives and pose threats to the productive lives of the next generation--their children.

2.2.2.c Impact on Female Wage Earnings

The next related question addressed is: How has girls' primary education affected women's wage earnings? The answer to this question often is based on the premise that since education enhances the skills of women, then increases in productivity are reflected in increases in wage earnings. Furthermore, studies that examine the association between education and wage earnings look at the private rate of return under the assumption that educated individuals benefit from schooling only to the extent that they hold paid jobs (Schultz 1989). "Thus, if a year of additional schooling raised the wage rates of girls by x percent per year, then the internal rate of return is x percent" (p. 17). In most human capital analyses, which look at income variance across (employed) individuals in urban areas, education and age (or experience), are cited as the best predictors, typically accounting for 10 to 30 percent of the variance.

One of the early studies to compile education earnings data for girls and women in Africa was conducted by Thias and Carnoy (1972). Based on labor force sample surveys, their study indicates that earnings doubled for significant numbers of young women (aged 17-29) with completed primary education (7 years of schooling) as compared to women with little or no education (0-2 years of schooling). Their simple analysis did not include, however, the education earnings of males, so gender comparison is not possible. Mohan (1985) has in Colombia estimated earnings function for women and found returns to be higher in secondary and higher education. The estimates of Lamas and Musgrove, likewise, did not predict significantly higher earnings for women who attended school than for those with zero years of schooling. Merrick (1976) found that for formal sector employment, education had a significant impact on earnings, particularly for women in Brazil. But, in comparing the wages between men and women, Merrick (1976) demonstrated that women s earnings rise much less with education than do men's, so that salary differences between the earnings of the two sexes increase systematically with women's educational levels. Woodhall (1973a) compiled a few of the studies that estimate different rates of return for males and females. Table 11 shows that the rate of return to primary education, measured in terms of pre-tax earnings differentials after adjusting for the total resource costs or private cost of education, tend to be lower for girls than boys in Puerto Rico and Kenya. This result strongly suggests that women are disadvantaged in terms of total wage earnings in the labor market.

There are several explanations why earnings of more educated women do not show unequivocally positive results. Becker (1964) in his seminal work observed that the lower return from women's education is not so much attributable to their lower productivity levels as to their

Table 11

Rates of Return to Investment in Education in Puerto Rico and Kenya by Year of Schooling and by Sex*

Schooling	*Male*	*Female*
	(in percent)	
Puerto Rico (1960)		
1-3.5 years	15.0	8.7
3.5-5.5 years	14.9	10.4
5.5-8.0 years	22.7	15.0
8.0-10.5 years	21.3	18.4
10.5-12.0 years	26.3	44.9
Kenya (1968)		
Primary	21.7	7.1
Secondary	23.6	19.5

*The returns are based on pre-tax earnings and measure the social rate of return.

Source: Woodhall, M. (1973a).

lower participation in the (formal and measurable) labor force. There is an underlying assumption that education has no effect on the productivity of people working outside of the market labor force. Such an assumption, as we will show later on, is far from true.

Tilak's (1987) study of the returns to education in Andra Pradesh, India illustrates how sensitive the calculations of returns are to the treatment of the rate of labor force participation by women. She demonstrated that when the returns are adjusted for unemployment, both the private and social rates of returns to education at virtually every level are greater for women than men. Private rates of returns to schooling have been estimated for men and women from a 1986 Indonesian Survey that compared standard estimates of the wage function to those that include both community-fixed effects (proxy for school quality) and household-fixed effects (proxy for family background correlates) (Behrman and Deolalikar 1988). All private rates of returns to education for females exceed that of men.

Khandker (1989) examines the returns to schooling for both men and women wage earners based on the 1985-86 Peruvian Living Standard Survey. By incorporating in his probit equation selected control variables for a family's landholdings, unearned income, and marital status, he showed that women's private returns increase and are marginally higher for women than for men at the secondary and higher education levels. At the primary level, however, returns are persistently low, and lower for women than for men.

Schultz (1989) examined the 1976, 1981, and 1986 socioeconomic surveys of Thailand to further evaluate the effect of sample selection bias on the estimates of the private rates of returns to education. This involves the incorporation of sample selection correction terms in the analysis to represent the probability of being in the labor force and being a wage earner. These selection equations include family nonearned income and landholdings, along with the standard market wage determinants such as education. By correcting for the selection bias, the returns to education for women seem to increase while it tends to diminish those of men. His study concludes that education does not exert a monotonic effect on the labor force and wage earner status of Thai men and women.

One other aspect of the labor market characteristic that has not been adequately dealt with in quantitative studies is the presence of distortions in the labor market due to discriminatory employment practices against women. These pose entry barriers to women and thereby limit the earnings benefits that women may get from education. Studies of the effects of sex and race discrimination in developed countries such as the United States emphasize the difficulty in isolating and measuring the effects of discrimination. Sanborn (1964), Gwartney and Stroup (1970), and Cohen (1971) have shown that a large part of the income difference between men and women can be explained by differences in hours of work, seniority, on-the-job-training, and occupational distribution.

A sample survey of Brazilian urban households on the basis of headship was analyzed to identify the factors determining the earnings of male and female household heads. This Merrick and Schmink (1983) study shows that although human capital variables (age and schooling) are important determinants of the general level of earnings, the labor market structure (principally the jobs open to women) explains most of the differences in earnings between male and female heads. His multiple regression results suggest that age and education have a significant effect on male but almost no effect on female household head earnings. Simply being female, however, increases the likelihood of being in the informal sector and having low earnings.

The pattern of occupational distribution by sex, as shown in the preceding subsection, supports the notion that there are certain occupations that are "masculine" and "feminine." The stratification of occupations by sex is reinforced by the gender-biased educational structure including sexist textbooks and instructional materials, differential curricula for girls and boys, and vocational counseling[10]. In most cases, the "predominantly female" occupations are characterized by higher than average educational qualifications and lower than average pay. Other "female-occupational" characteristics are that they are often standardized all over the country and so do not demand a high degree of worker mobility. They also involve tasks that traditionally are regarded as female such as nursing, typing, or caring for young children. This has been the situation for so long that society takes it for granted.

A more comprehensive cost-benefit analysis of education suggests that the monetary returns to female education are low because of discrimination in the labor market that yields lower earnings, lower labor force participation, and fewer working hours for women as compared to men. Since earnings differential do not adequately measure differences in productivity, they can never be a satisfactory measure of economic benefits. In addition, the earnings differentials of women account for only a fraction of their productive work. Since educated women tend to be heavily concentrated in "female occupations," where the validity of earnings as a measure of labor productivity is more than is usually expected, some other measure of benefits is warranted (Woodhall 1973b).

The common method used to assess the impact of girls' primary education on economic productivity vis-a-vis wage earnings thus raises a number of important questions. If the low returns to female education are due mainly to the lower labor force participation of women, then it raises some doubt about the validity of conventional rates of returns measures, which calculate benefits of education solely in terms of earnings differentials and ignore nonmarket and/or unpaid work. As discussed later in this paper, women's nonmarket work has a substantial positive economic value and though this is not usually measured for purposes of national income accounting, there is no reason why it should be ignored when measuring the benefits of education. If some allowance is made for indirect benefits of education, it is likely to raise the rate of return to women's education. As Woodhall (1973) pointed out,"even if it is admitted that true rates of returns for women are higher than conventional estimates, this still leaves the problem of how to measure the benefits of education in the case of women who leave the labor force and receive no financial returns at all. The real problem is that rates of return measure benefits solely in terms of earnings from market work and a large part of women's work takes place outside the market and is therefore unpaid even though it does have opportunity costs" (p. 286).

If the low rates of returns are due chiefly to wage discrimination, then this would strongly support the case for equal pay. On the last point, one can possibly argue that the returns to education depend upon the income differential of educated and uneducated women, and not the absolute level of their income. Hence the question is whether educated women tend to encounter less wage discrimination than women with less education. To the extent that education makes her aware of her rights to equal pay and just remuneration for her productivity, then an educated woman is likely to face less market discrimination than uneducated women.

This section has examined the relationship between women's productivity as reflected in the level of wage earnings and level of education. Three issues were addressed: a) the comparison of wage earnings among women with different levels of schooling; b) the comparison of wage earnings between men and women for each level of schooling; and c) the use of wage earnings as measurement of urban-based employment productivity. The mixed results from various studies were explained taking the varied methodologies and the quality of the data used into account.

Several questions are raised on the usefulness of the rates of return approach and on the validity of the assumptions behind the method, particularly with reference to developing countries. First, these rates of return assume that wages are reasonable approximations of the value of the marginal product of labor for the average individual in each educational category. This premise is questionable if there is a systematic bias in the wage payments to individuals of different schooling levels. The findings of Behrman and Deolalikar (1988) and Woodhall (1973) emphasize precisely this problem of interpreting estimates of rates of return for women, namely the difficulty of allowing for the effects of discrimination in the labor market.

Second, it is assumed too readily that expenditure on education would more than pay for itself by the economic activity it would generate. As Arthur Lewis (1962) and Bowman (1980) have pointed out, in poor countries the amount of education that will pay for itself in economic terms is bound to be limited (at least in the short run) because of the limited absorptive capacity of the economy.

Third, relative earnings reflect not only differences in education but also the cultural and social norms, (for example, gender discrimination) as evidenced in the labor market recruitment and promotion practices. Therefore, at the most, the rate of return estimates assume only a part of the earnings differentials associated with education. In addition, there is the problem of measuring productivity of women who are not in the formal labor force. All of these factors imply that the private rate of return to girls' primary education is highly underestimated in the conventional approaches.

2.2.3 Impact on Women's Performance in the Informal Sector and Self-Employed Activities

The extensive barriers to women's participation in formal sector employment have resulted in creative occupational alternatives. For some women, especially those with access to capital funds, these alternatives involve business proprietorships such as retail stores, dress shops, etc. For many women who have no substantial capital base, these options entail informal sector employment as petty traders and market vendors, craft producers, processors, and microentrepreneurs. During periods of rising unemployment and economic recession, large numbers of women join the "informal sector" despite the unstable and often uncertain aspects of its activities that make it less desirable than regular jobs in factories or offices. Informal sector occupations, in contrast to those in the formal sector, do not offer social security or employment benefits, and are not covered by permits or licenses, employment contracts, or guarantees. Also, informal sector workers rarely have access to credit or technical assistance that could make them more productive and their work more remunerative.

Given the legal nature and the necessary license requirements of some business establishments, a handful of women's self-employed activities are counted. This is not the case, however, for the multifarious informal sector activities, so that it is difficult to know their exact size. Studies suggest that there is a strong correlation between unemployment growth rate and growth of the informal sector. For example, Merrick (1976) examined informal employment (including domestic workers) in an urban labor market in Brazil using 425 samples from a 1972 survey. His findings suggest that informal participation is highest for those individuals who, due to their lack of schooling, are more likely to be unemployed or to be at the margin of the work force. The informal sector thus absorbs both early school leavers and unemployed or underemployed educated members of the labor force.

Generally, women account for most of those employed in the informal sector. S. A. Ramzi et al (1988), for instance, pointed out that a whole informal, unofficial, and invisible economy in

al (1988), for instance, pointed out that a whole informal, unofficial, and invisible economy in Egypt is in the hands of women. This informal economy includes nonmonetary economic activities to which are added cash earning and market activities. Other studies also have indicated that African women account for a substantial proportion of the informal sector and engage in enterprises such as beer-brewing and selling, weaving and cloth dyeing, food processing and selling, trading or market vending, and even informal lending (Jiggins 1988). The following questions, however, remain: First, how does education affect women's choice to enter wage or self employment? Second, does girls' primary education affect women's economic performance in self-employed and informal sector activities? Finally, among those who are working in the informal sector, how does education affect their access to credit, and their productivity and earnings?

2.2.3.a Effect on the Participation Rate of Women

In a study of 21,000 workers in Colombia, Psacharopoulos et al (1987) estimated a probit function to determine what influences workers to choose between wage and self-employment. The results in Table 12 indicate that education by itself is not an important factor in choosing which sector of employment to enter. The insignificance of the education coefficient in the Psacharopoulos study may be explained, however, by his definition of who constitutes the self-employed (i.e., nonwage employed). The sample includes a heterogeneous mix of both owner-employers with substantial capital base and hired workers (most of which are business proprietorships) and the one-worker "own account" enterprises including vendors, shopkeepers, etc (which comprise the informal sector). Further distinction between the self-employment category might have revealed a curvilinear relationship.

Studies that focus only on registered business undertakings of women show that education has a positive impact on self-employed activities such as business proprietorship participation. In those areas of Southeast Asia and West Africa where trading traditionally has been the women's preserve, many educated women have retained their entrepreneurial role in business, adjusting successfully to market conditions (Tinker 1976). The strength of organized business women in Guinea-Bissau and Nigeria has given them influence in affecting government decisions. In Jakarta, the wives of middle-ranking government civil servants run shops and make jewelry. In the Philippines, educated women are adept as real estate agents, stockbrokers, and business managers. Education, in the case of middle-and upper-class women in the developing countries, has therefore opened up some new "self-employed" occupations for women. An important factor that enabled these educated women to participate was their access to a substantial capital base that allowed them to undertake entrepreneurship and to have servants who took over their household tasks and family responsibilities (Tinker 1976).

Studies of women workers in the informal sector, especially microvendors and street traders who have no access to any significant capital base show the opposite results. For many of the enterprises education does not seem to have any effect. The study of microvendors in Bolivia by Escobar (1989) characterized women microvendors in La Paz as having lower educational profiles. They have, on average, 2.5 years less than the average for the economically active population. Escobar argued that women predominate in the urban informal sector precisely because the low levels of schooling and qualifications generally found among poor urban women limited their incorporation into other sectors of the labor market in which these attributes play an important role. Within this sector, there tends to be an important difference between male and female microvendors. Escobar's survey of households of self-employed workers showed that 18 percent of women, as compared to 6 percent of men, had no formal education. Women microvendors on average had only 4 years for schooling as compared to 6 years for male microvendors. Likewise,

Table 12

Probit Estimation Results on Probability of Being Self-Employed. Colombia. 1981

Independent Variables	*Impact on Probability*[a]
Age	Positive*
Age squared	Negative*
Years of schooling	Insignificant
Urban born	Positive*
Years resident in city	Insignificant
City size:	
- Mid-size city	Positive*
- Large city	Positive*
Head of household	Positive*
Constant	Insignificant
Chi-squared	224.11

[a] (*) Mean statistically significant at the 1 percent level or better.

Source: Psacharopoulos, G., et al (1987).

Blau's (1984) study of Nicaraguan women shows that while the positive effect of education on formal sector participation is significant, the reverse is true for informal sector participation. The influence of education on hourly wages is positive, however, and this is stronger for formal sector wages in other urban areas.

In Southeast Asia, one of the most common forms of income-generating activities is selling cooked food. This hardly requires education-related skills and is more lucrative than many of the jobs open to women with little or no formal education (Heyzer 1986). Taking place at street corners, roadsides, market places, or pasar malam (night markets), food trading is considered a highly competitive activity. Profitability is determined not by level of productivity, but by years of experience and developed ties with regular customers. Women new to trading, in fact, have great difficulty in being accepted into lucrative areas (Heyzer 1986).

Other case studies on microvending seem to confirm the relative insignificance of primary education on microvendors' activities. Jules-Rosette (1988) pointed out that literacy and numeracy may aid women in obtaining sales licenses, but the general illegal and clandestine nature of most marketing activities tends to make these skills irrelevant. Moreover, literacy and numeracy skills are not adequate to guarantee a sales license, given the stringent quotas imposed on their availability. It is not surprising, therefore, that a self-selection process takes place in this particular activity. Pearce's (1984) study of street food vendors in Nigeria indicated that almost half (41.6 percent of the sample) were illiterate persons, while 20 percent of the sample had primary education, and 11.6 percent had finished secondary school.

Street vending is only one of the ubiquitous activities undertaken by women to generate income. Microenterprises, which include retailing, sewing, weaving, and other commercial self-endeavors not regulated by law, are part of the so-called informal sector. Thompson (1981) argued that the ability of educated individuals to generate their own employment has proved dependent upon the availability of loans and grants to assist them initially and upon trading situations favorable to the small entrepreneur--conditions that have not been sufficiently satisfied in many countries. If education facilitates women's access to credit, then types of informal enterprises or self-employment where access to credit is required may play an important role.

2.2.3.b Impact on Women's Access to Credit

There is evidence that literacy and numeracy may play a role in women's access to credit. The impact of education on credit areas, however, depends on the type of credit provided.

Studies suggest that literacy and numeracy play a limited role in formal or bank credit. Lycette and White (1989) for instance, stated that one of the reasons women often are excluded from formal bank loans is their higher illiteracy rates and overall lower educational attainment relative to men. "Many poor women are incapable of completing application forms that require more than rudimentary reading and writing skills. In addition, rural women in the Andean countries, Guatemala, and Haiti may know only indigenous languages and rarely know how to write." (p. 28)[11].

While literacy and numeracy skills are necessary prerequisites for access to success of formal credit, they are by no means sufficient conditions. Interviews with financial institutions in the Dominican Republic and in the Philippines, for example, revealed that few credit options are available to urban women with incomes below the upper-middle class level. The principal criterion followed by banks is the creditworthiness of potential borrowers, which is judged primarily on the basis of asset ownership (which can serve as collateral), and personalized ties with bankers--both of which serve to reduce the default risk. Educational levels and even profitability of the economic

venture may be given only secondary consideration in the credit application, if given any consideration at all. The limited ability of formal financial institutions to meet the credit needs, especially of microenterpreneurs, strongly implies the importance of the informal credit sector.

Reichmann's (1989) study of two women's microenterprise programs in the Dominican Republic and Peru demonstrates the importance of credit cooperatives and other types of informal intermediaries in filling this credit gap. In most cases, the available supply of funds and the extent of credit demand determine loan size. It is in the informal sector, particularly credit cooperatives, that literacy and numeracy play a crucial role. The low level of literacy skills among women in Peru, for example, explains in part why the number of women applying for loans even in integrated credit programs such as the Rural Development Fund, is lower than that of men, and why women are engaged in activities requiring smaller loans (Arias 1989). Literacy and numeracy allow them to understand the terms of the loan, to read written contracts before signing, and to determine the cost of the loan, all of which are important steps in any credit exchange.

The experiences of a women-specific credit program in the Dominican Republic, the Grameen Bank in Bangladesh, and FUNDE's experience in developing savings and loan cooperatives in Nicaragua to meet market women's credit needs seem to demonstrate that the success of credit cooperatives depends largely on the literacy of its members as well as on the utilization of interpersonal relationships (Abreu 1989, Bruce 1980, Grameen Bank 1985). Abreu (1989) cited as one of the serious obstacles to the expansion of credit programs in the Dominican Republic, the low communications skills among the campesinas, the target borrower group. The extent to which these programs can expand and grow depends upon the levels of formal and functional literacy among women.

The anecdotal evidence presented here suggests the limited role of literacy in increasing women's access to formal credit. Among informal sector types such as credit cooperatives, however, literacy and numeracy are necessary ingredients for determining the success of such endeavors. Further research is needed to substantiate these preliminary findings. Given the increased role of women in informal sector and self-employed activities, there is a need for sex-disaggregated credit data to assess more extensively the impact of girls' primary education on credit access.

2.2.3.c Impact of Education on Female Entrepreneurs' Earnings

The broad range of activities that fall under self employment and informal sector categories and the diverse characteristics and requisite resources and skills of these endeavors suggest the absence of any straightforward relationship between primary education and women's entrepreneurial earnings. Again, the variety of statistical methods and, more importantly, the differences in the population sample used based on varied definitions of "informal sector" explain why the outcomes of the studies seem to be contradictory.

Bourgignon, Gagey, and Magnac (1985) conducted one of the few studies that focuses exclusively on women's earnings. They constructed a labor supply and earnings model for employees in the formal and informal sectors and the self-employed in Bogota, Colombia. Their results led to the conclusion that education had a significant effect on earnings in activities that require either substantive capital and or skills learning. The findings of Jarrouse and Mingat (1989) on the determinants of Nigerian informal sector earnings showed that entrepreneurs were significantly more successful if they had attended primary school (p. 11). As a corollary, they found that primary enrollment enabled young people to profit appreciably more from periods of apprenticeship in the informal sector. In this type of informal sector activities, it was found that the private return of primary education exceeds 50 percent (p. 10). In addition, basic education also

raised earnings in the informal sector by helping people choose the most profitable types of endeavor.

On the other hand. Chiswick's (1976) estimates of the wage and profit portions of earnings in Thailand, however, showed that schooling and experience were better predictors of employees' incomes than of self-employed earnings. Using a household survey of 5,739 earners in 1971, Chiswick found that there is a close correspondence between wages and self-employment income for people of higher educational levels, whereas at lower educational levels, the self-employed earn more than wage earners. Education and experience are more significant predictors of men's earnings than women's. She also found that 57 percent of the income of men was derived from income from self-employment, while for women it was 76 percent. Women seemed to rely more on self-employment activities.

Other studies provide evidence that shows no significant relationship between education and informal sector earnings. Berger's (1989) study of the microenterprise borrowers in the Ecuador informal sector showed that education had no significant effect. Using multiple regression analyses to determine the factors that affect informal sector earnings, her results showed that the years of schooling coefficients were insignificant, but positive, for men's monthly earnings and were insignificant and negative for women's. Berger's results are consistent with the results of the study by Tielhet-Waldorf and Waldorf (1983) who found experience and other variables more important than education in explaining income differences (earnings estimated on an hourly basis). Using a small sample data of 79 self-employed persons in Bangkok, they found that schooling has little effect on hourly earnings as shown by the coefficients of the estimated earnings function. Years of formal schooling also was statistically insignificant for vendors and shopkeepers. This suggests that formal education beyond the barest skills may not add to earnings in these type of occupations. An examination of an urban labor market in Brazil (Merrick 1976), suggests that female earnings vary less than males. The type of female employment (formal vs informal) and gender seem to affect earnings more than education per se. Completion of primary education yields a 60 percent gain in earnings for males, versus a 6 percent increase for females, while university education brings 60 percent gain for females and nearly 200 percent for males.

The mixed results provided by the different studies on the impact of education on the informal sector earnings of women is confirmed by Moock et al (1989). This study looks at nonfarm, family businesses in Peru and uses the enterprise rather than the individual as the unit of analysis. The 3,158 family enterprises included in the study are mostly small businesses classified either as "female-only" or "male-included" firms that employ at least one adult male family worker. Their results show a wide variation in the sizes and statistical significance levels of the effects of education on hourly earnings in Peru's family enterprises.

Other studies that examined the effect of education on the earnings of the self-employed do not make any distinction by gender. In a study of the earnings of Colombian workers, Psacharopoulos et al (1987) compared the mean earnings and educational levels of three kinds of workers: self-employed (both business proprietors and informal sector workers), private sector employed, and public sector employed. Their findings raised two noteworthy points. First, completed primary schooling has the highest impact on the mean monthly earnings among the self-employed. Second, there appears to be no earnings differential between self-employed and wage workers. The higher earnings of the self-employed includes the asset effect since they are likely to have a higher amount of capital funds or asset base to work with.

Several conclusions seem to emerge from the preceding discussions. First, the discernible educational effects of education on the informal sector and self-employed earnings of women depends on the requisite skills and capital requirement of the activities. Some of the informal

activities in which women participate such as market vending and food processing are for the most part traditional employment for which schooling is rarely relevant. However, in activities that require access to credit funds, especially from cooperatives where some type of apprenticesnip or training is needed, or that involve managerial skills, primary schooling may have a significant positive effect. The diversity of economic activities in the informal and self-employed sectors and the varied levels of capital and human capital requirements largely explain the mixed returns to primary education. For example, a business enterprise such as textile manufacturing, which includes both weaving and tailoring, is more demanding with respect to literacy, numeracy, and problem solving skills than food vending in the streets of Indonesia or the urban poor communities of Quito, Ecuador[12]. This leads us to conclude that education hardly improves the earnings of self-employed individuals when they engage in traditional economic activities. Education becomes valuable when they take up new methods of production or engage in activities that require literacy, numeracy, or the ability to adjust to change.

The above studies rely mainly on statistical data and hence examine only measurable aspects of women's economic performance in the informal sector. As Berry (1980) pointed out however, there is a need for a quality-oriented approach to studying the impact of education, particularly in the informal sector. In the context of poverty alleviation, it is important to remember that existing illiteracy and lack of education have an effect on existing economic relations, entirely apart from its negative effects on income. It puts the illiterate at the mercy of the more educated in some business dealings. There also is the possibility that literacy may have threshold effects in unlocking innovative human skills by opening the door to the future growth of the individual. Technological progress, especially in highly decentralized informal economies, may come from many sources including from women with a few years of schooling.

2.2.4 Impact on Nonmarket and Home Production Activities of Women

An important dimension of the economic impact of girls' education that is overlooked is its effect on the economic productivity vis-a-vis women's home and nonmarket activities. Most policy makers and economists have been unable to address the fact that women perform two roles in society. In developing countries, it is taken for granted that women bear children and at the same time perform economic activities that are essential to the family unit. Unfortunately, statistics, the "holy building blocks" of developers, economists, and planners, are often based on two assumptions: a) work is performed for money and b) work is located only in the modern sector. But often the agricultural work done by family members, as well as the exchange labor, household work, child care or many other home activities, are not recorded as "work". Since statistics do not show women working, planners often do not plan for women.

In the last two decades there have been attempts in the field of "new household economics" to document women's activities at home as well as in the market. Estimates of the value of housework often are based on housewives' time budgets, with each activity valued in terms of the wages it would command in the market. This is of little help in providing the measure of the benefits of education for women who are not in paid employment, since returns to educational investment must be measured in terms of income differentials, rather than absolute income. As expressed by Woodhall (1973), "what is needed is some estimate of the effects of education on a woman's productivity in home production" (p. 286).

In some cases, family income, instead of personal or independent earnings, is used as a measure of returns to education such as the case of Becker (1964)[13]. This approach, however, avoids the problem of the valuation of women's nonmarket work since the measurement method rests naively on the assumption that a nonworking wife shares her husband's monetary income. It does not attempt to measure her own contribution to the family's income. Women devote a large

part of their time to housework and the care of children, activities that do command a price if the economy is fully monetized and that have considerable imputed value. To ignore these activities underestimates the economic effects of education. As will be shown in the social impact section of this paper, education may significantly increase the value of woman's contribution to nonmonetary family income, by improving the quality of her child care services, etc. There is ample evidence that the general environment she provides for her family, especially her children, is influenced by her educational attainment (Buvrinic and Yudelman 1989). These are some of the significant external, or spillover, benefits of investment in education that are not included in any quantitative analysis of the returns to girls' education.

2.2.4.a Nonmarket Effects of Girls' Education

Another important yet often ignored economic contribution of girls' primary education is the production of goods and services for home consumption, including home maintenance and reproductive tasks (see Table 13). Both the lack of appreciation for this important yet ignored dimension of aggregate economic output and the problems associated in measuring the returns to women's labor in home production are cited and linked to the relative absence of studies relating education to women's productivity in this area. A few studies, including Haveman and Wolfe (1984), emphasize the need to incorporate women's productivity in nonmarket activities (often relegated to social or noneconomic impact categories) in examining the rates of returns to education.

One serious limitation of the rates of return effect of education mentioned previously is that it ignores the indirect or "spillover" benefits and noneconomic benefits whose measurement difficulties usually mean that they are not taken into account in cost-benefit calculations. For example, Haveman and Wolfe (1984) emphasized that differences in schooling also are associated with differences in nonwage remuneration in the form of fringe benefits and working conditions for those in the paid labor force (item 2 in Table 13). Appropriate microdata are not available, however, to allow these benefits to be captured in rate-of-return estimates.

An even more significant nonmarket effect of girls' primary education on economic productivity that is rarely mentioned is its impact on home production. This includes domestic work, intra-family relations, and child care (items 5-7). The unit value of the hours spent on home production may increase, according to Haveman and Wolfe (1984), even though the amount of time spent on these activities may decline. Leibowitz (1975), on the other hand, suggests a positive relationship for both the unit value and amount of time spent on home activities and women's education.

Items 12 and 13 in Table 13 relate to the potential contribution of primary education to the efficiency of choices (matches) in the consumption and labor market. Since it has been shown that women make decisions on food and other related home expenditures, the argument is that education yields information, facts, and ideas that enable women to make consumption choices more efficiently, implying a reduction in both costs and time[14]. There is also indirect evidence that education reduces consumption of medical care.

Schooling also may increase regional mobility, resulting in better matches of jobs and skills. Again, no estimate of the value of these contributions to economic well-being associated with more schooling is available.

Table 13

Impacts of Schooling, Nature of Impacts, and Evidence on Magnitude of Level and Value of Impact

Channel of Impact of Schooling		*Economic Nature of Impact*	*Status of Economic Benefit Estimates*
1.	Individual market productivity	Private, marketed; human capital investment	Increments to marginal value products, reported as rates of return. Producers' surplus neglected
2.	Nonwage labor market remuneration	Private; marketed and nonmarketed; human capital investment	Rough estimates of true returns to schooling 10 to 40 percent greater than rate of return estimates indicate
3.	Leisure	Private; nonmarketed; consumption	
4.	Individual productivity in knowledge production	Private; nonmarketed; human capital investment	No firm evidence on the extent of value
5.	Nonmarket individual productivity (e.g., do-it-yourself)	Private; nonmarketed; human capital investment	No estimates of economic value
6.	Intra-family productivity	Private; some external effects; both marketed and nonmarketed; human capital investment	No estimates of economic value
7.	Child quality through home activities	Private; some external effects; both nonmarketed and marketed; human capital investment	No significant evidence of economic value except intergenerational earnings effects
8.	Own health	Private; modest external effects; partially marketed; human capital investment and consumption	Little evidence on economic value; except indirect evidence via earnings, weeks worked, and life expectancy
9.	Spouse and family health	Private (within household); modest external effects, partially marketed; human capital investment and consumption	Little evidence on economic value; except indirect evidence via earnings, weeks worked, and life expectancy

Table 13 - Continued

10a	Fertility (e.g., attainment of desired family size)	Private (within household); nonmarketed; consumption	No estimates of economic value
10b	Fertility (e.g., changed tastes for children)	Private (within household); some external effects; nonmarketed consumption	No estimates of economic value: perhaps impossible given nature of taste change, except through influence on economic growth
11.	"Entertainment"	Private; nonmarketed; consumption	No estimates of economic value: perhaps impossible given nature of taste change
12.	Consumer choice efficiency	Private; some external effects; nonmarketed; human capital investment	No estimate of the value of increased efficiency
13.	Labor market search efficiency (including migration)	Private; some external effects; nonmarketed; human capital investment	No estimate of the value of increased efficiency

Source: Haveman, R. H. and B. L. Wolfe (1984).

2.3 Summary

The preceding discussion highlights the significant economic benefits of girls' primary education in Third World countries. By providing literacy, numeracy, communication, information processing, and cognitive skills, primary education enhances women's ability to perform the multitude of methods and even new tasks that vitally contribute to economic development and to the economic well-being of their families and themselves. The significance and urgent need to raise and improve the economic performance of women is felt even more during economic recessions. Slow economic growth, rising debt service burden payments, severe budgetary constraints, chronic food shortages, high population growth rates, growing unemployment, and persistent poverty only serve to underscore the economic role of women --as food producers, and as providers of child care, health care, etc. Economic growth and productivity would have been more sluggish and food shortage more severe if not for women's contributions. In the midst of these economic realities, the ability of most families in the Third World to cope with the economic crises largely rests upon the women and their access to both human and nonhuman capital resources.

This chapter has examined the multidimensional and complex channels through which education affects economic development in general and the households' economic well-being and economic independence of women in particular. The positive outcomes of girls' primary education, however, are conditioned by the circumstances on which the productivity potential is utilized. The degree to which primary education enhances development largely depends on its interaction with the prevailing economic and social conditions. For instance, while education favorably affects both the willingness of women to enter the labor force as well as the shift from marginally productive to high productive activities, intervening variables such as age, cultural restrictions on women's activities, extent, type and dispersal of industrialization, gender discrimination, and women's limited or lack of access to complementary resources such as land, technical training, capital equipment or machines, etc. may limit the alternative options and job opportunities available to educated women.

Although education has an unequivocal positive impact on female labor force participation, the question remains as to whether this has translated to higher employment rates and higher real earnings for women in both the rural and urban areas. These are important issues for the answer(s) determine whether in contributing to economic productivity, the women themselves and their families benefit economically from primary education.

The preceding discussion has shown that the productive potential of educated rural women is realized and their contribution to agricultural development is maximized if broad-based rural development strategies such as food crop promotion, increased women's access to land, credit, and technology resources, industry dispersal, and increase in rural wages are pursued; and if gender discrimination in hiring women, especially for semi-skilled and skilled jobs and in training program participation, are addressed. Women's skills are utilized more fully if the opportunities and incentives are there for women to work to the best of their abilities.

As more and more women migrate to the cities, the question of job availability in the urban areas becomes even more important. If women are able to use their education in the process of production, then the structure and capacity of the urban labor market is a critical factor. The type of industrial expansion--whether labor intensive or not, affect the realization of educational benefits. In the long run, however, the question of job availability for educated women is not the only major consideration. The type of working conditions, i.e., the health and safety environment under which women operate, crucially determine the length of their productive lives as well as the

productive life of the next generation--their children.

Studies have shown that among those employed, education has shown significantly positive private returns in the form of higher wage earnings. A few studies however, went further to explore how education has affected the wage differential between men and women. There is some evidence that the wage discrimination between educated men and women is less than the discrimination between uneducated women and men. This may be explained by the facts that literacy and communication skills make women aware of their rights to equal pay and to just remuneration for their productivity.

The impact of primary education on women's performance in the self-employment and informal sector activities is the least straightforward of the channels. This is partly due to the paucity of studies on the relation of education on women's participation and performance. For instance, there is little direct evidence of educational impact on women's access to credit sources given the absence of any sex-disaggregated data. The mixed evidence that is available in the literature is also due to both the ubiquity of activities and accompanying skills requirement as well as to differences in the sampling techniques and methodologies used in empirical analyses. What the limited evidence seems to suggest is that in industries that require relatively more capital and asset base and that are more demanding in literacy, numeracy, and problem solving skills, returns to primary education in the form of enhanced output and greater entrepreneurial earnings may be significant. In this case, human capital becomes a critical requirement for women undertaking new methods of production or techniques such as in dressmaking, cottage industries, etc. But education may not make as much of a positive impact when women are engaged in traditional economic activities that rely primarily on hands-on experience and public relations rather than on education-based skills such as street trading and microvending, or when the activities in which they are engaged are constrained by lack of capital resources.

There is an important qualification that must be considered in assessing the economic impact of education. Some effects occur through channels that are not included in markets or that cannot be measured or quantified. The preoccupation on statistical data often leads to overlooking these important channels or processes. For example, one significant dimension of gross domestic product and national income that is never accounted for in national statistics is women's production of home consumption and nonmarketed goods and services. There is a dearth of economic studies that examines the educational impact on the production of these goods and services. The anthropological and sociological literature has fared much better in highlighting these issues. If these so called "externalities" or "spillover" benefits of education are systematically accounted for, the direct and indirect economic benefits of education are far higher than what is reported. In the context of poverty, for example, lack of education often leads to persistence of unequal power relations. It puts the illiterate at the mercy of the powerful. Literacy and numeracy are critical in having *informed* members of the labor force. Successful mobilization against economic injustices and social inequalities require a literate population. Moreover, education leads to access to information and hence may have threshold effects in unlocking innovative skills in women. This would largely contribute to technological progress.

As stated by Haveman and Wolfe (1984), given the inadequacy and limitations of quantitative data and statistical analyses in examining the relationship between girls' primary education and economic development, "...one is therefore left with the strong impression that incremental schooling yields aggregate economic well-being benefits that are considerably larger than those captured in (available) estimates of the differences on the average level of schooling."

In the following chapter, many of these "externalities" and indirect benefits are discussed in the analysis of the social impact of girls' primary education.

END NOTES

1. The equity effect of education, therefore, strongly depends not only on which level of schooling is expanded, but also on whether there is accompanying redistribution of resources among educated individuals and whether the level of wage earning reflects increased productivity.

2. This is indicative of the attitude of many economists that "women spend less time in the labor force than men and therefore have less incentive to invest in market skills" (Becker 1964, p.51) and that "in view of the expected smaller rate of participation in the labor market, education of women is more strongly focused on the 'consumption sphere' and returns are in large part more non pecuniary than for males. Hence, the apparently smaller money rate of return." (Mincer 1968).

3. This approach assumes that the earnings attributed to individual workers are a measure of their contribution to output. Higher earnings attributed to higher education, therefore, reflect their increased productivity and their contribution to economic growth.

4. The latter is based on the assumption used in the estimation of returns method that the opportunity costs for women are lower than for men, so that even if absolute earnings of men are higher, the rates of return to girls' education are higher.

5. Psacharopoulos and Steier (1987) argue that one of the evils of high debt-service payment would be the instigation of short-term, quick-yield projects that may have lower rates of return relative to long-term social investment projects (p. 1).

6. It is estimated that women farmers grow at least 50 percent of the world's food and as much as 80 percent in some African countries. Between one-third and one-half of the agricultural laborers in the Third World are women. Roughly two-thirds of women workers in developing countries are engaged in agriculture (Buvinic and Yudelman, 1989, p.22). Since their produce is often for home consumption and is therefore a nonmarketed good, their contributions as food producers are not counted in national statistics.

7. See T.W. Schultz (1975), "The Value of the Ability to Deal with Disequilibria," *Journal of Economic Literature*, Vol 13, pp. 872-876. Cited in Lockheed, Jamison, and Lau (1980).

8. Heyzer (1986) noted that in many parts of Southeast Asia, the changes in the patterns of migration are striking. Traditionally, it was mainly men who would migrate for periods of short duration. However, at present, more young women than men leave their rural base. In Thailand, Fuller (1983) showed that there is a higher rate of movement for young women than young men, based on the 1980 census data. Likewise, women in the Philippines are numerically dominant in the rural-urban migration.

9. This supports the point of Svennilson (1964) "Economic Growth and Technical Progress: An Essay in Sequence Analysis" in OECD, *The residual factor and economic growth*, OECD: Paris cited in Bowman 1980.

   "Education that is extended to the whole labor force will...tend to improve the efficiency with which existing capital equipment is used and speed up 'the learning process' ..." The screening model hypothesizes that educational credentials are viewed by employers as a good proxy for future productivity to warrant their use as a rule of thumb, either in the structuring of pay differentials among workers or in the selection of workers for given jobs. Given that education presumably contributes to skills formation and that the level reached is often correlated with variables contributing to productivity such as ability and motivation, such a rule of thumb appears to be sensible." (p 61).

10. For more discussion of sex-biased education, see T. J. Wirtenberg and C. Y. Nakamura, "Education: Barrier or boon to changing occupational roles of women," *Journal of Social Issues* 1976 32(3):165-170.

11. Although school enrollment and literacy among girls have increased greatly in the Latin American region, literacy rates are still low among older women, precisely the age group that tends to engage in informal sector activities. In Guatemala and Honduras, for example, literacy rates for women 35 years and older are 30 percent and 37 percent respectively. A 1985 study of the rural population in the Dominican Republic showed that only slightly over half of the women knew how to read or write (Mones and Grant 1987).

12. While textile manufacturing-related businesses yield positively significant effects for female-only and all firms, the returns to primary education in retail trade tend to be positive but negligible and in personal services, they even tend to be negative. This implies that what it means to be "self-employed" is very different, and far more complex than what Psacharopoulos et al (1987) assume.

13. G. Becker, 1964. *Human capital: A theoretical and empirical analysis*, Columbia University Press, New York.

14. Evidence provided by Michael (1975) suggests that schooling shifts consumer budget allocations in much the same way as an increase in income, hence contributing to the overall household well-being.

CHAPTER THREE

SOCIAL CHANGES: THE EFFECTS OF GIRLS' SCHOOLING

3.1 INTRODUCTION

3.1.1 Questions Addressed

This chapter examines two questions about the relationships between girls' primary education and the social impacts of that education. One question is operational: In what contexts and in what ways does educating girls lead to an impact on the larger society? This question is significant because policy makers need to understand why schooling for girls is important, what kind of schooling is most effective, and what outcomes can be anticipated according to the cultural, rural/urban, or class context within which it occurs.

The difficulty in addressing this set of questions lies in the nature of the information included in most reports about the impact of girls' education. Much of the existing material consists of macro-level quantitative studies that have not been broken down to indicate variations within the data according to cultural, rural/urban, or class differences. As the easiest, and generally the only, type of information about girls' education recorded on that macro-level is the number of years of school attended, variation in the type of education received also is not often available. Most of the other materials examined in this review are qualitative micro-level reports that describe the setting of the impacts reported, but are so context specific that it is difficult to generalize from or compare them to similar materials reported from a different context. An additional difficulty with both the macro-level quantitative data and the micro-level qualitative data is that both generally describe only a single "slice-of-time," which limits exploration of the long-term impacts of girls' education.

The second question is one of process: How does educating a girl affect her in such a manner that she causes changes in the larger society? This question is important because what has been explored about the impact of girls' education has been focused, to an overwhelming degree, upon women's reproductive role, i.e., fertility and child mortality and health, and not upon the girls' own lives and their social contributions. One reason for this focus undoubtedly lies in the extreme importance of the issues of fertility and child health to most of the poorer countries of the world. A second reason may be simply that these are the easiest impacts to report as they can be quantified, i.e., the number of children born, the number who die, and a version of child health that is, in most cases, measures of weight and height. But the most important reason may be that demonstrating how schooling will help girls to better perform their traditional role as mother is a "safe" way to promote female education. Thus, studies tend to ignore the impacts of girls' education that may, in the short run, be socially disruptive, but may also, in the long run, be socially beneficial.

Again, the difficulty in addressing questions of how education affects girls to cause social changes lies in the nature of the literature. The literature on women's education generally overlooks the women themselves as active participants in their own lives, and the manner in which their education affects social variables is explained only tangentially, if at all. There are, for example, almost no studies directed specifically to the effects of a primary education on girls' self-esteem or their adoption of new social roles as adults. The girl who receives the education has become unimportant in understanding social impact, which is defined in terms of her offspring, rather than

in terms of herself.

3.1.2 Theoretical Perspectives

The literature analyzing women's education is shaped, to varying degrees, by two theoretical perspectives. These orientations influence what aspects of a women's life are examined and what role education is seen as playing, providing different types of data and, frequently, different conclusions.

The first perspective is a development-based viewpoint in which modernization is usually seen as a positive process, through which women are freed of "traditional" constraints that limit their status and activities. The use of the word "developing" to describe the poorer nations of the world, many of which are undergoing a rapid process of modernization, is an indication that what they are seen as having in common is their movement toward the "developed" character of the richer nations. Education, within this perspective, is a part of the modernization process, directly enhancing women's well-being through the knowledge and skills that they acquire and through shifts in attitudes and values. Increased nuclear family structure is perceived as part of the development process, leading to a unit within which women can exercise more control than within an extended family or other traditional social units. Women's lack of status is seen as the result of cultural sex role stereotypes, social attitudes about women, and women's low self-esteem, role conflicts, and lack of confidence.

A more radical perspective, found generally in anthropological and/or Marxist-based approaches, views women as having lost status as a result of the modernization process. The present status of women is perceived as the consequence of both traditional values and social organization and changes made in technology, resource ownership, values, and social organization as the result of colonization and modernization. In this context, education is not always seen as having played a liberating role, both because women have generally been excluded from its benefits and because the actual experience it offers girls frequently reinforces existing social status and structure. A women's education is seen as having either a negative effect, by predisposing her toward the adoption of a nuclear family structure that makes her dependent upon a husband and separates her from the support of other social groups, or a positive effect, by leading to her own wage employment, control of resources, and better understanding of her options. The literature that utilizes this approach to examine women's status focuses on a women's degree of control over production and resources as the basis for her power, both within the family and in the larger community.

3.1.3 Chapter Organization

In order to address both the operational and process questions of how girls' primary schooling has a social impact, the discussion has been organized according to three major contextual variables and, within those variables, examined in terms of what effects education has on girls that lead to social impacts. The primary contextual variables to emerge from the literature are social--rural/urban differences and, within those differences, class distinctions; cultural--reappearing patterns of educational effect within some cultural systems; and longitudinal--changes influenced by schooling girls that are not apparent in a single time frame.

3.2 EDUCATION OF GIRLS IN A RURAL CONTEXT

3.2.1 Skills Gained Through Primary Education

It is generally assumed that the most important skills that girls gain from a primary education

are literacy and numeracy. During interviews with rural women in Zimbabwe (Zimbabwe Women's Bureau, 1981) women said: "Education is very important these days. Without it, I can't even read the signs on the road" (Mhkondora, p.10). "Also, education will help us when we are working and speaking in cooperatives. It will be easy for us to count money" (Masembura, p.10). However, there is evidence (to be discussed in greater length in a later section) that the amount of skills girls learn when they do have access to schools is limited by the social context in which it is received and the expectations of parents, teachers, and the girls themselves. The perceived relevance of the subjects to the girls' lives also influences what is and is not learned. Vlassoff (1980) found that girls in rural Indian villages demonstrated relative ignorance about a range of subjects taught in primary school compared to the responses of a sample of village boys. For example, the girls knew little about the geography of India or its location within Asia; most of the girls had never traveled more than a few kilometers beyond their village and never expected to do so. In a study of rural Malay women, Strange (1978) found that, for the poorer women in the village, their responsibilities and socioeconomic roles differed little from those of their mothers before the school had been built in the village. As has already been pointed out in the Economic Section of this report, the scarcity of wage employment in most rural areas means that the literacy and numeracy skills girls acquired in school seldom help them in securing jobs, lead to higher wages for them, or are used by them in the jobs that they do have.

Yet, while the actual skills learned in school may have little direct application in the lives of most rural women, these skills learned and the experience of education appear to have certain social impacts. Safilios-Rothchild (1982) noted that a primary school education is crucial for girls as it establishes the literacy that increases options for vocational training, rural development projects, and nonformal education. For example, in Yemen the Ministry of Health requires candidates to have a primary school certificate to be eligible for the health training programs offered in rural areas (Hashem, 1990). Nelson (1981) indicates that attempts to involve women in development programs have shown that it is more difficult to train rural women than rural men due to the women's relatively greater illiteracy and lack of specific skills. Although not distinguishing between males and females, Seetharamu (1985) has concluded that, more than any other factor, the level of schooling distinguishes the participants in agricultural extension and nonformal skill-training programs from other rural dwellers. Schooling not only makes a person aware of nonformal training programs and establishes the basic literacy and numeracy needed, but also imparts the necessary initiative and self-confidence to enroll in such programs. Berstecher (1985) has found that education for women does lead to their greater involvement in nonformal training projects. In addition, Muzaale and Leonard (1984) found evidence that women's agricultural extension groups in Kenya retained literate members longer than illiterate members, which gave them access to the long-term benefits of joint welfare funds, production information, and acquisition of additional skills.

McGrath (1976) has pointed out that in societies in which women's contacts remain otherwise circumscribed, primary schooling is even more important than for men, as men are routinely expected to interact with other adults in the course of employment, recreation, political participation, and religious observance. Where informal learning situations for women are severely limited, education can be a key to the development of social skills that lead to independent values and future gains in status. Klineberg (1973), in Tunisia, and Callaway (1986), in Nigeria, both found that one of the primary impacts of education for girls in those societies was increased contact outside their households and the opportunity to find social reinforcement for self-conceptions and aspirations that they had developed. The Zimbabwe Women's Bureau (1981) found that the lack of any formal education clearly influenced how women saw themselves: "Without education you are nothing in this world" (Mtoko, p.10). Robertson (1984), in her study of Ga women in Ghana, found that education had become an essential part of a person's status. Those without any formal education had their inferiority impressed upon them constantly,

sometimes believing it themselves. She reported that "I am only an illiterate so I cannot answer that" was a common reply to various questions (p.138) and that when asked why schooling was important, women answered "because...it gives one self respect." Smock (1981) has hypothesized that education can widen a woman's perspective on her life and enable her to question traditional prescriptions. It could also stimulate a sense of self-confidence and control over one's environment, which would make women less inclined to accept a passive stance. In spite of the importance of these possible impacts of education on women's lives and an accumulation of experiences that suggest such effects, there have been almost no studies that directly address the questions of education's impact on women's self-esteem, confidence, and perspective on life and how these changes affect the larger social context.

There is, however, one group of skills that girls acquire during schooling about which a great deal of data has been accumulated: skills in nutrition, recognition of illness, sanitation, and other areas related to increasing child health. Although there is no clear evidence whether literacy and numeracy, self-confidence, specific health-related knowledge, or the acceptance of a "modern" paradigm creates the difference, girls with schooling become mothers who raise healthier children. The International Center for Research on Women (1988) has concluded, after analyzing the results of a number of studies, that females place greater importance than males on the satisfaction of household food needs. And women with more education appear to be better able to translate their value of nutrition into child health.

The role of mother's education was isolated specifically by Chatterjee and Lambert (1989), who found that infants of illiterate women in rural India had a mortality rate more than double that of infants whose mothers had a primary school education. A study on the relationship between child nutrition and factors such as family income and maternal education revealed that literate mothers made better use of scarce resources for their children's welfare than did illiterate mothers with higher incomes (Baiagi 1980). In a United Nations study using data from 115 countries, maternal literacy had a higher correlation with life expectancy at birth than any other factor. Cochrane, Leslie, and O'Hara (1980) reviewed the literature on the effects of parental education on child health and concluded that maternal education is closely related to child health, whether measured by nutritional status or infant and child mortality, stating that the evidence on the significance of the relationship was unequivocal. Since then, Blumberg (1989) has examined worldwide evidence to conclude that women's education is associated with dramatically reduced infant and child mortality and improved child nutrition. She also notes that mother's education almost invariably has a stronger effect than father's education on lowering infant mortality and improving family health. Schultz (1989) found that an added year of maternal education tends to be associated with a relatively constant percentage decline in child mortality rates.

In the Philippines, Berrera (1988) found mother's education related to better child nutrition, especially in those children under two years of age, when they are most dependent on the mother for food needs. Using data gathered from 28 countries, Hobcraft et al (1984) also found mother's education especially important in determining their youngest children's chances for survival. The role of education in strengthening the mother's ability to insure her children's health also is seen in the fact that female infant mortality, relative to male, has been shown to decrease with mother's education (Blumberg 1989).

3.2.2 Attitudes Changed Through Primary Education

There are a number of studies that investigated education's impact on attitude changes associated with "modernity" (Rosen and LaRaia 1972, Chaudhury 1978, Fox 1973, Oppong 1977, Kleinberg 1973). For example, Rosen and La Raia (1972) collected data from women in Brazil about their attitudes, deriving an "index of modernity" that was defined as having a greater

sense of personal efficacy, enjoying a more egalitarian relationship with husbands, placing a greater emphasis on independence and achievement in the socialization of children, and perceiving the world in a more active perspective. With the exception of continued research into household decision making (which will be discussed later), little investigation has continued along these lines. This may be due, in part at least, to questions about whether or not "modern" attitudes do improve the quality of life and about the methodology involved in obtaining survey results.

There are, however, a number of attitude changes in girls that have been clearly linked to their schooling and, because of the significance of those changes to the future of most poorer countries, each has been carefully researched. Education has been found to change girls' attitudes about the number of children they desire. Vlassoff (1980), interviewing unmarried adolescent females in rural India, found that the ideals of family size were significantly associated with level of schooling. The least educated respondents, within a range of from zero to eight years of schooling, desired an average of over one child more than the most educated. Schultz (1989) has shown that women's desired fertility falls monotonically with her amount of education.

While the drops in fertility associated with increased education of women in most countries is well established (World Fertility Survey 1987, Blumberg 1989), the size and form of that relationship varies considerably. Much of the decrease in fertility is credited to later ages of marriage, frequently associated with education in rural areas, and involvement in waged employment, which has not been linked to education in rural areas (see Economic Section). Although the education of women is strongly and inversely related to a later age of marriage (Blumberg 1989, Kritz and Gurak 1989, Senanayake 1990), however, it does not appear that it is only the act of being in school that delays women's marriage, as in many countries girls' education is completed well before the usual age for marriage. In rural areas of Nigeria, Orbuloye (1981) found that the overall fertility of those who had been to school was lower than those who had not and that most of the differences in fertility were due to changes in marriage patterns after schooling was completed. In addition to leading to a desire to have fewer children, education also may lead to changes in both the girls' and her parents' attitudes about the appropriate age for marriage.

Although less researched, girls' education has also been associated with increased desires to educate their children. Mother's education has been correlated with increased participation in education by their children in Nicaragua (Wolfe and Behrman, 1984), Peru (King and Bellow, 1988), and Brazil (Birdsall, 1985). Kossoudji and Mueller (1983) found that in Botswana rural female headed households were more likely than others to send their children to primary school. Evidence of how that relationship is established has been provided by a number of qualitative studies. In rural Tanzania, Kerner (1986) found that the more affluent peasant households were headed by men, who tended to invest surplus in marrying an extra wife, thereby adding to the domestic labor pool. In contrast, female household heads saved their income to pay school fees and expenses and encouraged their children to study and prepare for entrance examinations. Robertson (1984), in her study of women in Ghana, credits shifts in mothers' attitudes with increased school attendance. There women play the dominant role in financing their children's education, paying school fees for children of both sexes even in situations where men have refused to support girls' schooling.

In addition, a mother's education has been shown to have a differential affect on their son's and daughter's education. King (1983) found that, in the Philippines, mother's education is related to greater increases in education for female children than for male children. King and Bellew (1988) have shown that the education of both parents has a positive effect on their children's education in Brazil, but that the impact differs for boys and girls. The father's education had twice the impact of the mother's on boys, while the relative impacts of parents' education on the education of daughters were equivalent. They explained their results by suggesting that the

mother's education counter-balanced the father's preference to educate boys. There is ethnographic support for that interpretation in Kerner's (1989) contrast of boys' and girls' participation in the educational system in two regions in Tanzania, where in one region women traditionally exercised greater power in decision-making than in the other. In the region where women exercised relatively more decision-making power, parental investment in girls' education was nearly that of boys. In the region where women exercised less power, boys' education was stressed. Back et al (1985) investigated the effects of mother's education on the education of adolescent daughters and found that teenage daughters in school credit praise and confidence-building experiences in their homes with their present educational attainment. Both praise and confidence building were positively associated with the amount of schooling their mothers had achieved. The effects of mother's education on their daughter's educational intentions were positive in all socioeconomic categories, with the most significant differences in the lower classes.

As a number of the above studies do not report their data according to differences in rural and urban context, the relationship between mother's and children's education may be affected by these factors. Cochrane, Mehra, and Osheba (1988) found that the relationship between mother's education and that of their children in Egypt varied according to area of the country. The mother's education had a significant positive effect on children's schooling in urban areas; however, it was not found to be significantly related to current participation in school in rural areas. Larson (1988), in a study of two rural communities in Egypt and Tunisia, found that parents' expectation was that their daughters' education would lead to an office job and an easier life. Caldwell, Reddy, and Caldwell found in rural south India that high class parents stress educating girls to achieve literacy, while poorer parents stress their expectation that educating their daughters will enable them to get waged work. Yet, as shown in the preceding chapter, due to the lack of waged employment available in rural areas, a girl's education does not always lead to employment. The implication is that when the education of daughters is not perceived as being associated with improved earnings and/or status, then the mother's education is less likely to provide a positive force in increasing her daughter's schooling.

Another attitude change, an increased desire for urban life, which has also been associated with the education of girls in rural areas, does not have the positive impact of desires for fewer children, later marriage, and more educated children. As already mentioned in Chapter II, education in rural areas is often associated with an increased desire for urban life, which can lead to migration. Berstecher (1985) has found that the content of the education received prepares students for white-collar and professional careers, not agriculture. As few such positions exist in rural areas, schooling increases the motivations for migrating to urban areas. In addition, Vlassoff's (1980) study of unmarried adolescent females in rural India found that the girls with more education, on a scale of from one to eight years, would prefer to have husbands engaged in urban, nonagricultural occupations to a significantly greater degree than did the uneducated girls.

3.2.3 Increased Control Over Life Through Primary Education

King (1990) has proposed that when the educational gender gap is great between husband and wife, indicators of social welfare, such as female life expectancy, infant mortality, and fertility, tend to be worse. She points out that some countries with narrow educational gender gaps achieve levels of social well-being comparable to those of some richer countries with larger gender gaps. She hypothesizes that, when the education difference between husband and wife is great, then the wife's role in decision making is smaller relative to her husband's. As women generally bear the responsibility for child care within the household, less control over decisions on allocation of expenditures and fertility could lead to, for example, higher infant mortality and fertility. If education does grant women more decision-making power in their households, then they are able to utilize the changes in skills and attitudes that they have acquired through that education.

But the evidence suggests that women in most countries of the world lack sufficient decision-making power to act according to their own priorities. For example, Curlin and Brown (1985) have pointed out how difficult fertility control is for women even when sources of contraception are available. The World Fertility Survey shows that nearly half of the married women surveyed in 27 poorer countries want no more children. Yet only one third of them were using any form of contraception. Maynard-Tucker (1989) found that in rural Peru, where 90 percent of the wives and 99 percent of the husbands interviewed had knowledge of at least one method of contraception, almost one quarter of them reported using none, and more than half of the rest used only the rhythm method. In this region women averaged a new pregnancy every 18 months and generally blamed their husbands, complaining of the increased burden they experienced with each additional child. Men's involvement in raising the children was minimal and, interestingly, they did not blame themselves for their wives' successive pregnancies. In another study, Acharya (1980) found that almost 70 percent of the women surveyed in Nepal, where women's participation in education is particularly low, claimed to have knowledge of family planning, and over 60 percent knew the location of the nearest family planning service. Yet, depending on the ethnic group, only 0 to 13 percent used any form of contraception. Studies (Spratt, Crouch, and Cubeden, n.d.) have demonstrated that the availability of family planning alone is insufficient to significantly alter fertility.

While education has been shown to decrease the number of children a woman desires, her ability to actualize that desire may be limited by a lack of decision-making control. Greenstreet (1990) found that in Ghana generally females do not practice family planning without the permission of their husbands. When wives have attended clinics without their husbands' knowledge, family conflict has often ensued and even divorce has resulted when her attendance has been discovered. The Zimbabwe Women's Bureau (1981) found that although women report the biggest problem facing them is the number of children they have, they are often opposed to family planning because their husbands would not allow it. Gulati (1985) has found that South Asian wives are more anxious to control their fertility than their husbands. In one low-income area of India where men often desert their families and women generally have to support their children, she found that women frequently did choose sterilization after their second or third child. A number of other studies suggest that when rural women have more decision-making control over their lives, then they decrease their own fertility (Blumberg 1985).

In the same manner, there are a number of indications that rural women improve the health of their children when they have more control over household decision making and the allocation of resources (Kennedy and Cogil 1987, Blumberg 1989). A study of desperately poor families with children in rural South India found that the single largest contributor to children's nutrition was the home garden tended and distributed by their mother (Kumar 1985).

One of the best summaries of how primary education has frequently been perceived as affecting women's status within the family unit was presented by Caldwell (1979). He stated that

> "what could be seen operating in any West African household that includes educated women was that the education of women greatly changed the traditional balance of familial relationships...Those who had been to school, even for relatively short periods in village schools, assumed that they had been given different models and had experienced a deep personal change. A woman with schooling is more likely to challenge her mother-in-law, and the mother-in-law is much less likely to fight the challenge. She is more likely to attempt to communicate with her husband and her husband is less likely to reject the attempt. With the strengthening of the spousal link, she is more likely to succeed in crystallizing out from the matrix of the extended family."

Both Oppong (1977) and Smock (1981) have hypothesized that female education alters the nature of the marital relationship, giving women a greater role in decision making, especially in regard to fertility and child health decisions. D'Souza and Bhhyiya (1982) found that, in Bangladesh, household decision-making changes with the education of women, with greater shares of household resources becoming available to educated women and to their children. There have been very few other studies of the impact of girls' education on increased control of decision making in their households as adults, which may be one of the requirements that enables them to act upon the changes in skills and attitudes produced by their education.

3.2.4 The Role of Women's Independent Income

A positive relationship between women's education and employment in waged labor does not hold in all countries, or all areas within countries, during all time periods (see Chapter II). Education leads to involvement in wage economy only if jobs exist, which they do not in many poorer countries. Standing (1976) has pointed out that the shortage of job opportunities, as well as the low wages earned by women, have deterred families from investing in girls' education. Because women have not been expected to work in the labor force, they have been deprived of education; because they have been deprived of education, their employment opportunities have been restricted; and because those opportunities have been restricted, their limited access to education has been rationalized and perpetuated.

Evidence for a connection between women's education and increased income under their control may be missing, to a large degree, simply because it has not been sufficiently researched or has been researched in such a manner that important data is ignored (see Chapter Two). If an education does increase the likelihood that women will have an independent income, then social changes that occur when women gain such an income are a part of the social impact of formal schooling for girls. Blumberg (1989), summarizing a number of studies, has concluded that income under female control, relative to male controlled income, is a major determinant of women's status. An independent income generally enhances women's decision-making power within the household regarding childbearing, economic issues, and family welfare. In addition, women's income is most often spent for children's nutrition and education and the family's basic needs.

Having an independent income increases a woman's ability to have a social impact through her ability to spend that income according to her own priorities. Blumberg (1989) has pointed out that studies show that women tend to contribute a higher proportion of their income to family subsistence, holding back less for personal consumption. In a study of poor families with children in rural South India, no positive increase in child nutrition was found as paternal income rose, while increasing maternal income did benefit children's nutrition (Kumar 1985). Kennedy and Cogill (1987) have studied the effects of a shift from maize to sugarcane production in Kenya. They found that much of the male farmer's increased earnings created by the change was spent on nonfood products, but that in female-headed households, where women had the power to control the resources, there was consistent evidence of the better nutritional status of children. A rural Malay women's earnings are, theoretically her own, but most married women utilize at least part of their income to supplement their husband's earnings (Strange 1978). All women who can manage it have secret savings, which are used to send children to school who would otherwise be unable to attend. Kerner (1986) found that, in Tanzania, when women have direct control over their income, they tend to invest more heavily in the educational expenses of their children than do men.

A number of studies also have presented evidence that when women have a source of income independent of their husband's earnings, it does affect their status within the family. Blumberg (1985), studying the impact of agribusiness on women in Guatemala, found that after five years of

having their own earnings, which exceeded their husband's during peak season, the impact on fertility was unmistakable. Women involved in waged work at the processing plant averaged 2.2 children in contrast to women of the same age in a nearby village, where their husbands were paid for work that included their wives' help in the fields, who averaged 5.2 children. When asked about further fertility, women in the villages where they did not control their own incomes, often replied: "I don't want any more but my husband does, so I'll have to continue." Rosenzweig and Schultz (1985) have found that the survival rate of female infants in relation to male babies was higher in areas where there were better employment opportunities for adult women, female infant mortality decreasing with increases in both mother's education and in economic opportunities for women.

There also is, however, a fair amount of evidence that wage employment and economic power do not necessarily lead to greater status and decision-making power within the family. Gallin (1982) found that women in a Taiwanese community, which over the past 20 years has changed from an economic system based almost purely on agriculture to one founded predominantly on off-farm employment, had changed from strictly domestic work to joining men in public sector employment. Yet their participation in work outside the home has not been accompanied by a significant redefinition of their status. Strange (1978) studied village Malay women over a ten-year period of shifting economic conditions. The lives of the poorer women in the village and their responsibilities and socioeconomic roles were little different from their mothers', although literacy had given them a greater awareness of the world beyond the village, which, combined with exposure to mass media, had increased desires for things that they have no means for satisfying.

The relative scarcity of studies investigating the impact of an independent income on women's status and the mixed results of those studies together with the absolute absence of research on the more complex interrelationships among women's education, independent income, and status in rural areas, point to a serious gap in the literature on the social impact of educating girls.

3.3 EDUCATION OF GIRLS IN AN URBAN CONTEXT

3.3.1 Skills Gained Through Primary Education

The degree to which girls can make use of the literacy and numeracy skills they learn in school in an urban context may, to some degree, vary according to whether they are poor. For example, Kamphoefner (1987) reports that the real uses of education for women of low socioeconomic class in Egypt are few. If a woman seeks factory work or related formal sector employment, then to be hired she may need to present a primary school certificate or pass a literacy test. But, as the supply of workers outstrips the demand, these criteria are generally used only as artificial requirements to narrow the pool of applicants, and literacy is rarely used at all on the job. A study of female domestic servants in Peru found that literacy was useful to them primarily for writing letters to relatives, reading newspapers, and increasing their personal contacts (De Sagasti 1972). While finding that formal education may be of limited use for lower-class women in Egypt, Kamphoefner (1987) did report that education has made them more desirable for marriage. He found educated women more able to help their children with their homework, thereby replacing the private lessons considered essential to success in school in Egypt. As poorer families cannot generally afford such lessons, children without a mother who is able to tutor them will generally drop out of school at an early age.

On the other hand, education for higher class women may more often correlate with employment and increases in status. According to 1970 data from Brazil, rates of labor force participation increased with the level of schooling for women, but, as the majority of Brazilian women had less than four years of schooling at that time, this relationship was probably due to the

high socioeconomic status of the women who received an education (De Miranda 1977). In Brazil, in a poor wage labor market, higher class women were four times more likely than lower class women to be able to get jobs due to the opportunities provided by their social contacts. Moses (n.d.) reports that in Montserrat in the British West Indies education for middle-class women was more likely to confer social mobility, a good job, more income, and better housing than it was for working-class women. In Chile, employed women generally earn less than men with the same education and need higher levels of education than men for the same job. However, women's education has a powerful effect upon the probability of their acquiring middle-class, "female appropriate" jobs considered appropriate for females such as secretary, nurse, or teacher (Schiefelbein and Farrell 1980).

In countries that are multilingual, as most areas of the world are, when the medium of instruction in the school system is a national or international language, schooling for women confers an additional skill, which is of special value in an urban context. In Yate's (1982) study of the Belgian colonial schools in Zaire, one feature differentiating education for boys and girls was the medium of instruction. The Education Act of 1890 emphasized the teaching of French in boys' schools, but was unconcerned that the schools for girls taught no French. Later, reforms kept French as an elective in all boys' schools and the language of instruction in schools to prepare male clerks, but only African languages were used in girls' schools. In 1948, boys were provided with the first full academic secondary schools using French as the language of instruction, but teaching in the girls' schools continued to be in the vernacular only. Limiting literacy training for girls to the local language, rather than French, effectively restricted girls' opportunities in the modern sector.

As in the research on the impact of education in rural areas, there has been little investigation of how girls' schooling affects their self-confidence, self-esteem, and perceptions of their roles. Antrobus and Rogers found that women in Jamaica who were trained in skills such as management and accounting, which required literacy and numeracy, reported increased self-esteem and confidence. Verder Wees and Romijn (1987), who report that women have had little or no access to small enterprise programs, consider women's lack of confidence as a key factor that inhibits their performance in starting and operating small businesses. Clearly research is needed into the relationship between a primary education and involvement in additional training programs, entrepreneurial initiatives, and other activities that may be promoted by the confidence-building aspects of an education.

Both LeVine (1980) and Caldwell (1986) have suggested that education increases a mother's self assertion and confidence, which she uses to defend and pursue her children's health. In a study of 300 mothers in a Mexican city, LeVine et al (1987) found that mother's schooling was consistently related to those behaviors most important for child health. The proportion of pregnancies in which the mother received prenatal care at a clinic was significantly related to her years of school attendance. In a survey of infant health crises, the proportion of mothers who took their children to a clinic within three days of the onset of symptoms was significantly greater for those who had been to school for at least six years than for those with less or no schooling.

Chatterjee and Lambert (1989) found that the infants of illiterate women in India had a mortality rate more than double that of those whose mothers had a primary education in rural areas, but that this difference was reduced to two-thirds higher among illiterate women in urban areas. They suggested that urban factors such as the greater availability of health services partially offset the detrimental effects of female illiteracy in an urban area, while education leads to health-enhancing changes, such as better hygiene and improved nutrition and feeding practices, in both rural and urban contexts.

3.3.2 Attitudes Changed Through Primary Education

Primary education influences women's attitudes about family size. LeVine et al (1987) found that, within a sample of 300 low-income, urban Mexican women, the women who had been to school longer tended to want fewer children than those with little education, but their actual fertility greatly depended heavily upon the number of children their husbands wanted. Chaudhury (1978), studying fertility patterns in Bangladesh, found that use of contraception increases with each increase in educational level, from 15 percent for women with no education, to 40 percent for those with one to five years of education, to 71 percent at the highest level of education. Measurements of contraceptive usage in Mexico (Smock 1981) show that better educated women tend to use family planning techniques more frequently, with 10 percent use of contraception for illiterate women compared to over 50 percent use for those with education beyond the primary level. Kabwegyere (1975) found that women attending family planning clinics and adopters of contraception in Kenya tended disproportionately to be more educated than those who did not, having at least five to eight years of schooling.

The relationship between the amount of a mother's education and her desire to educate her children generally improves in an urban context. Clignet (1977) found that the greater the number of perceived occupational alternatives available to women, as is more true of an urban than a rural context, the greater the incentive that parents have to send their daughters to primary school. In rural areas of Egypt, mother's education was not found to be significantly related to current participation in school by their children, but it had a significant positive effect in urban areas. In Indonesia the effect of mother's education on the amount of education that daughters receive reflects a rural/urban difference as well as class differences within the urban context, which also have been linked to variations in occupational alternatives. A 10 percent increase in mother's education was found to be correlated with an increase in their daughter's education by 1.2% in middle-class urban families, by 0.7% in lower-class urban families, and by 0.3% in rural families (King, et al, 1986). Fox (1973) found that the impact of urban residence on girls' education appears to increase with each generation. Using data from three generations of women in Ankara, Turkey, the amount of education women receive increased according to the number of generations that the women had lived in an urban area.

3.3.3 Increased Control Over Life Through Primary Education

A study of 393 single, urban males in Ghana found no relationship between education and desired family size. Their education was, however, related to changes in attitudes about family structure, with an increased preference for nuclear units and more egalitarian roles within the family. Oppong (1977) saw this relationship as a crucial intervening variable in a chain of domestic changes that would, in the long run, lead to decreased fertility. If, as already suggested, women desire fewer children than do men, then any change that creates more control over fertility choices for women should lead to fewer children.

Evidence for whether or not education in itself, without the addition of an independent income, provides women with greater decision-making control over matters such as fertility, child health, or their own lives has seldom been gathered. LeVine et al (1987) found that, among low-income urban women in Mexico, women with some schooling reported making more of the important marital decisions jointly with their husbands than did women with little or no education. Johnson's (1972) study of Mexican women also found that illiterate women tended to be more husband-dominated than whose with some education.

Yet, in a number of other studies, education does not appear to have altered either women's decision-making power or their general status. Moses (n.d.) noted a distinction in the effects of

education according to the socioeconomic class of the woman receiving it. The study suggests that, in the British West Indies, education may have created more status-enhancing benefits, such as more income or social mobility, for higher than lower class women. Yet educated middle and upper-class women still considered themselves to be subordinate vis-a-vis their husbands to a greater degree than did educated working-class women. Middle- and upper-class women appeared to have internalized the male dominance ideology to a greater degree than had the lower-class women because higher-class men were better able to live up the roles set forth by the ideology, which included providing the major economic support for their families and being present in the household to make decisions. Abraham and Abraham (1988) found that the education of middle- and upper- class women in India has generally led to some changes in attitude and lifestyles, but rarely has transformed family structure substantially. Acharya (1980), while examining the interactions among education, labor force participation, and the status of women in Nepal, found inconclusive results, but reported that often illiterate women, whose poverty forces them out of domestic confines in search of employment, seemed to have better control over their own lives than did literate women belonging to higher socioeconomic groups who did not earn an independent income.

The impact of education on girls' attitude may vary according to what opportunities are available for change. In a number of countries education for girls has been promoted, but within a cultural context that limits the activities in which a woman can participate outside the household. Programs to promote women's education in Libya from the 1950s to the 1980s were not accompanied by any action to facilitate women entering the labor market, as the oil wealth of the country promoted hiring foreign female labor when needed (Attir 1985). Few social changes appear to have resulted from the women's education in Libya other than shifts in style, such as widespread unveiling--especially in urban centers, greater female participation in shopping and driving, and intra-city travel without a male companion. Meleis, El-Sanabary, and Beeson (1979) found a similar situation in Kuwait, where the primary motivation for a woman to obtain education was to enhance her desirability as a wife and mother, but in a manner that would not disturb the traditional structure of the family. Among Hausa Muslim women in Nigeria, Callaway (1986) found that, while levels of education for girls and women were rising dramatically, attitudes toward marriage and family and what was considered to be appropriate behavior for women did not seem to be changing. She concluded that "to change the extent of female subservience, women will need more than education--they will need a market for their skills and the social standing to participate in nondomestic activates" (p.15).

3.3.4 The Role of Women's Independent Income

As mentioned in the section on education in a rural context, one of the primary reasons that women migrate to an urban area is the anticipated opportunity to earn an independent income and change their economic condition. Charlton (1984), in a study of the migration of Ugandan women, found that women were very vocal about why they migrated, saying that they were tired of being unpaid laborers on farms. In urban areas they felt that they could obtain incomes for their labor and change their economic positions. Evidence exists that girls' education does increase the likelihood that women will find employment in urban areas and therefore gain independent income (see Chapter II).

Having an independent income leads to social as well as economic changes in women's lives. Alo and Adjebeng-Asem (1988) found that income-earning activities of Nigerian women enhanced their status in the home in a number of ways. Among those changes, it enabled women to contribute directly to the household budget, which gave them more decision-making power; and it allowed them to better meet obligations to kin and children and also to cultivate gift relationships with a wider network of friends. Both of these benefits were felt to increase the woman's status.

Poor Mexican women reported that "of course (working for pay) is important, because if you earn your own money you yourself distribute it and you do not have to beg for it" (Roldan 1982). In addition, Roldan found that among female industry workers in Mexico City there was an unmistakable link between the percentage of the total household pool contributed by women and their leverage in fertility decisions. Having more children was a decision made by the women alone among 50% of those who contributed 40% or more to the household income; it was the women's sole decision among only 20% of those providing less than 40% of the total household resources. Blumberg (1989) concluded that income under female control, relative to male controlled income, is a major determinant of women's status, as an independent income generally increases women's decision-making power within the household as well as providing funds for children's nutrition and education.

The employment of women can also contribute to decreases in fertility rates. Ten percent of the decline in birth rate in Hong Kong has been attributed to delayed marriage (Salaff 1976). Women there have postponed marriage, which is culturally associated with the assumption of immediately having children, due to economic responsibilities to their parents and siblings. In one of the few studies directly investigating the interaction among women's education, their employment, and social impacts, Chaudhury (1978) found that both education and waged employment increased the use of contraception. In Bangladesh, a working woman who is illiterate or has very little formal education has fewer children than her counterpart who is not working. But, with more education, women have fewer children irrespective of whether they work outside the home or not. In addition, among women with some education there is little variation in the use of contraception according to work status, but, among women with no formal education, the use of contraception is four times higher among employed women than those who do not have an income.

While there are research studies that indicate a relationship between education and increased employment in urban areas and that address the impact of employment on women's lives and status, there has been surprisingly little investigation of how all three factors interact. For example, considering the importance of increased decision-making power if women are to act upon what they have learned during their schooling, there are almost no studies addressing the interrelationship of an education and an independent income on decision-making power in the household.

3.4 CULTURAL VARIATION IN THE EDUCATION OF GIRLS

3.4.1 The Importance of Considering Cultural Variations

In their Nepal study of two ethnic groups differing in religious ideology and cultural traditions, Acharya and Bennett (1981) found that a "woman's involvement in short-term employment or trading outside the village had a significant, positive impact on her decision-making power over the household's most important resource allocation decisions," but the impact varied within country depending on the culture of the women. In many of the Buddhist Tibeto-Burman communities in the northern part of Nepal, women are expected to be entrepreneurs and are well known for their relatively high status and autonomy; in the more Indo-Aryan, Hindu communities in the southern regions of the country, the activities of women are restricted to primarily household tasks and traditionally their status has been low. Do the independent income-generating activities of women have an impact on decision-making power or does the cultural system influence both the likelihood that women will have an independent income and the status of women in household decision making?

Caldwell's (1986) examination of 10 societies termed "superior health achievers," due to their abilities to achieve low infant mortality and high life expectancy with a relatively low per capita

income, found a disproportionate number of countries in the group dominated by a Buddhist ideology and a reoccurring cultural pattern of greater status and autonomy for women. The 10 societies termed "poor health achievers," due to high infant mortality rates and low life expectancy relative to their higher per capita income, are all wholly or largely Muslim or have large Muslim minorities. Caldwell finds a much higher percentage of girls in primary school in 1960 (to make them the right age to influence the 1984 statistics on infant mortality), in the high health achievers (largely Buddhist) than in the low health achievers (largely Muslim) countries. In his analysis of how some of the high health countries were able to achieve these results, Caldwell addresses the impact of both female autonomy and education. A number of studies on female status in Muslim societies (Hashem 1990, El-Sanabary 1989, Lorfing and Abu Nasr 1985), the social impact of education on Muslim women (Kamphoefner 1987, Attir 1985, Meleis, El-Sanabary, and Beeson 1979), and the nature of the education received by girls in those countries (Niles 1989; El-Sanabary 1989, Tinker and Bramsen 1975, Attir 1985, Callaway 1986) raise questions about the role of culture not only in limiting girls' access to schooling, but in limiting the ability of females to use what they have learned. Should the impact of culture on the amount and quality of education women receive and the amount of control over using what has been learned be ignored? Through culture-specific approaches are there ways that girls' education can be improved and directed so that it can have more social impact without disrupting religious and cultural values?

The power of culture is evident in Croll's (1976) study of Chinese women. She states that

> "...although female productive labor is a necessary condition for female status, it is not a sufficient condition. Despite the widespread incorporation of Chinese women into social production, change in female status has been somewhat less than expected. Changes in the economic situation did not necessarily result in the adoption of a new ideology. Remnants of the traditional ideology, which had taught that women should have no public influence or knowledge of affairs outside the home, remained."

Does variation in culture influence what are necessary and sufficient conditions for changes in female status, and what is education's role in those contexts?

These are questions without easy answers, if there are answers. The large, cross-cultural studies on the social impact of girls' education that dominate the literature disguise culture-specific patterns that may require culture-specific approaches. Just as the preceding sections focused on how educating girls can affect them in different ways in rural and urban contexts, according to their socioeconomic status and their control over their own income, this section will focus on how the cultural context within which the education occurs can also influence its social impact.

3.4.2 Examples of Variation in the Impact of Education on Women Within Specific Cultural Patterns

The assumption underlying much of the earlier development literature is that modernization has generally benefitted the poorer countries of the world. However, the consensus among most of the current literature is that, in at least many of those countries, modernization both has undermined traditional female patterns of authority and power and has benefitted women far less than men. The process of modernization did not begin upon "empty slates" and its effects, therefore, have varied according to cultural variables and historical contexts. The Western world takes pride in the relative status and power of women in its societies, and often assumes from the current relatively low status of women in most developing countries that there are cultural restraints contributing to that status that modernizing trends would help to overcome. Yet, in many countries of the world,

the current status of women not only is diminished from previous control over their lives, but, frequently, the intervention of Western colonialism, technology, and value systems contributed significantly to the present status of women. Consequently, the problems of educating women and improving their status so that the impact of that education can be realized differ in each society according to the traditional cultural role of women and the specific history of women's education and control of resources. The following discussions of patterns of interaction among traditional cultural systems, women's access to resources and education, and the current status of women are designed to demonstrate how culture affects the social impact of education.

In many parts of Africa and Asia the traditional cultural patterns for men and women involve separate domains of ownership, control, and responsibilities. Women in the Philippines have been characterized as having high social status, egalitarian relationships with men, and extensive power within the family, a social pattern traced back to a long tradition of segregated sex roles (Liu, Rubel, Yu 1969, Youngblood 1978). In the Filipino story of creation, the first woman sprang full-blown from the same cylinder of bamboo and at the same time as the first man (Clark 1979). But, under Spanish colonialism, economic and status disparities between males and females in the Philippines were intensified. Men began to move to labor centers and learned to use imported technology; they became the wage earners and, as such, assumed control of money expenditure. Changes in what was produced, from subsistence to cash crops, altered women's traditional control over aspects of production and women were increasingly confined to dependent domestic and childbearing roles. The status of men and women had traditionally compared as they were considered incomparable entities with different domains of control (Clark 1979). But the arrival of the Spanish, who placed much value on the shy, retiring, household version of femininity, introduced a period of more passive roles for women than existed either before or after the period of colonialism.

An economy that offered many opportunities for women to earn independent incomes, provided a relatively high level of women's access to education, and a traditional cultural pattern of authority contributed to the current status of Filipino women. In 1980, the female literacy rate in the Philippines stood at 83 percent and Filipino women between 15 and 19 years of age were slightly more literate than men of that age: 97.1 and 89.9 percent literacy rates for urban and rural females respectively versus 96.8 and 88 percent literacy for males (Torres 1987). Although men outnumber women in important economic, administrative, and political positions, and frequently receive higher wages for the same work, middle- and upper- class women, at least, play an active, and frequently prestigious, role in the work force, generally control the family purse strings, and have basic equality with men (Liu, Rubel, and Yu 1969, Clark 1979, Youngblood 1978). Women's status in the Philippines is also apparent in the high degree of social impact associated with their education. Survey data show that maternal education is positively related to child nutritional outcomes (Barrera 1988), to an increased role in marital decisions about fertility (Caldwell and Oppong), and to the increased education of children, especially daughters (King 1983, King, et al, 1986).

In most Sub-Saharan African countries women also traditionally had separate domains of power and responsibility from men. Sudarkasa (1982) has pointed out that the maintenance of separate occupational domains for the two sexes did not automatically imply a hierarchical relationship between those two domains in Sub-Saharan Africa. As in the Philippines, the colonial period introduced new value systems of nuclear family structure that included pooled resources and male dominance, which interacted with the traditional sex-role differentiation and with the technological and economic changes associated with modernization, the benefits of which were primarily experiences by males. The flexible, reciprocal division of labor that assigned women responsibility for productive work was replaced by a definition of women in terms of their reproductive roles. Being relegated to the household isolated women from socially valued

production, limited their access to material resources, decreased their personal autonomy, and lowered their social status. Because their domestic tasks did not produce exchangeable commodities, these tasks were not considered "work." Although the proportion of girls enrolled in primary school in Sub-Saharan Africa has risen from 26 percent in 1960 to 69 percent in 1984, illiteracy among women still stands at more than 70 percent on the average and more than 90 percent in rural areas (Njeuma 1987). The limited opportunities for earning an independent income and the limited access to education women have experienced in most Sub-Saharan African nations have set women on a track of continually decreasing status.

Yet the lack of any traditional cultural pattern restricting women from activities in the public sphere means that women in most of these countries express their desire for education as a means to economic and social power. The Zimbabwe Women's Bureau (1981) recorded women's comments such as: "We can't get any seats on the council because we aren't educated" (Rusito, p.11); "We want to participate in local decisions and to be chosen as leaders of organizations that are not only for women" (M'sengezi, p.17); and "Most women are not represented in the councils. Yet women are the ones who know what must be done in the rural areas for them to be developed. After all, it is the women who live there" (Nenguwo, p.18).

Education in Sub-Saharan African countries is in an unusual position both as part of the modernization process that has eliminated many sources of status for women, and also as a possible means for enhancing status, but a means that has, to varying degrees, been denied to women. The present differences in girls' and boys' access to schooling and the differences in the types of education that they receive began with the imprint of colonial values on their societies at a period in time when those colonizing nations had gender-specific roles in mind, due both to their own cultural values and economic or political desires. During the colonial period in Zaire, for example, education for boys trained them for roles as noncommissioned officers, artisans, clerks, male nurses, and plantation workers for the colonial administration. The education of girls was restricted to domestic skills and Christian virtues designed to create a pool of "virtuous young girls" among whom "our boys can find faithful and devoted wives" (Yates 1982, p.133).

Consequently, girls in Sub-Saharan African countries have had different educational experiences than have boys. Frequently, differences in curricula for boys and girls occurred when the earliest western-type schools were established. Staudt (1984) has studied colonial schools for girls in African countries and found that they were concerned with "the preparation of food...with household comforts...the care and feeding of children...and the occupations that are suited to the interests and ability of women." (p.7). Rogers (1980) also reports that it was boys who everywhere were singled out for formal education in colonized countries, with missionaries teaching girls little more than domestic skills. Rogers points out that in many poorer countries home economics still dominates the education and training available to women and girls; cooking, child care, sewing, and embroidery take up much of their time in many primary schools. Kerner (1986) found that, in spite of reforms designed to increase women's access to education in Tanzania, girls were often tracked into terminal vocational programs, such as domestic science.

A national survey of attitudes and school achievement among students in Botswana found strong support for the notions that women should be primarily responsible for domestic work (Duncan 1989). In addition, she found that a gender ideology that defined various subjects as male or female was a significant factor in determining achievement. She also found a consistent negative association between femininity and achievement, which implies that many girls are forced to choose between competence and femininity. Kagia (1985) and Mwagiru and Ouko (1988) both found that choice of curricula according to perceptions of female fields of study in Kenya limits girls' range of opportunities.

In a Rwanda classroom it was observed that not only were males called upon more than females, but that, when students asked for assistance, male students were responded to more quickly and more frequently than were females (Van Belle-Prouty 1990). In addition, male teachers often used gender-related comments to intimidate female students, for whom they expressed limited role projections. Biraimah (1987), studying classroom interactions in primary schools in Nigeria, found that girls' academic participation in class fell far behind that of boys, with boys typically participating 35 times for every eight times for girls. Male students received more positive reinforcement from the teachers; girls were assigned all the housekeeping duties for the class. Dorsey (1989) noted that in Zimbabwe, as elsewhere in Sub-Saharan Africa, academic expectations for girls are often low, which may depress aspirations and achievement. The teaching staff in a school in Lome, the capital of Togo, generally used terms indicating little regard for the ability, character, or potential of their female students. They often used negative or positive terms that had little to do with academic success, such as "neat appearance" (Biraimah 1980).

Separate schools for boys and girls eliminate the daily bias experienced by girls in co-educational schools. Dorsey (1975) found that academic achievement is higher for girls in single-sex schools in Zimbabwe than in co-educational schools. However, Mwagiru and Ouko (1988) found that, in 1979, 79 percent of all girls' schools in Kenya were boarding institutions, as compared to 43 percent of the boys' schools. Boarding schools are expensive, which means that fewer girls than boys can afford to go to school. In addition, Kagia (1985) concluded that lower performance levels for girls than boys in Kenya were due mainly to the poorer quality of many girls' schools.

Considering the type of schooling most girls who do have access to an education in Sub-Saharan Africa experience, it is understandable why it may not teach them what is necessary in order for them to be able to overcome the social consequences of low status. The current lower status of women in these cultures may be due, in part, to gender roles passed on in the process of education.

In many of the Hindu and Muslim countries of South Asia and the Middle East the traditional cultural roles of women were generally confined, due to religious constraints upon their activities, to household duties. Limited to a domestic sphere, women were isolated from the prestige and power associated with public activities and from the control of resources. Women's authority and status in these cultures were already restricted prior to the introduction of Victorian Western values with colonialism. The shifts in land tenure and technology accompanying modernization further eroded women's areas of control and status. For example, Hashem (1990) describes Yemen as a male-dominated society in which it is the man of the family--husband, father, or brother--who makes decisions about birth spacing, nutrition, workload, and preventive health care. In the Fertility Survey of 1979, men's education and occupation were found to be the most important determinants of women's knowledge of contraceptives.

What is of particular interest in an examination of the social impact of girls' education is the role cultural values have played in the relatively wealthy, oil-rich Muslim nations. Although, according to 1985 statistics, female primary school enrollments approached equal enrollments to male students (Kudat and Abadzi 1989), girls' education had little social impact on the women who were educated. In spite of access to education in the oil-exporting nations, opportunities for an independent income have been extremely limited by cultural patterns that continue to restrict women's roles to domestic spheres. Attir's (1985) study of women's education in Libya from the 1950s to the 1980s documents a process that was assumed would lead to major changes in Libyan women's social position and roles. But no action was taken to facilitate women entering the labor market, as the oil wealth of the country promoted hiring foreign female labor when needed. Attir states that the only social changes resulting from women's education appeared to be widespread

unveiling, especially in urban centers, greater female participation in shopping and driving, and intra-city travel without a male companion. Meleis, El-Sanabary, and Beeson (1979) found that in Kuwait before women enter a new field, it must first be defined as "female." The women themselves, with no prior cultural history of authority and control of resources, accept their lack of status by the type of education that girls often receive in Muslim countries.

The sharp distinction between male and female socialization in most Muslim countries according to El-Sanabary (1989), has a negative effect on girls' self-esteem and aspirations that is reinforced by their experiences at school. Tinker and Bramsen (1975), writing of students who attend Moslem schools in Nigeria, noted that:

> "many girls keep their mouths shut in class. They do not ask their teachers any questions. Neither do the teachers ask them. In fact most village school teachers keep the girls at the back of the class away from the boys in order not to incur the displeasure of the mothers."

Attir (1985) analyzed textbooks used in primary schools in Libya in the 1970s for representations of males and females. Among the illustrations that depicted teachers in the classroom, only 18 percent of the teachers were female in spite of the fact that 44 percent of primary school teachers during that period were female, hired from other countries almost exclusively. Only ten percent of the names mentioned in these books were female. Callaway (1986) found extremely high rates of failure on national examinations among Hausa Muslim school girls in Nigeria. Since parents, teachers, and students all expected these girls to regard marriage and children as their primary interests, there was no particular motivation for success in school. All girls were promoted whether they passed or failed subjects, many girls taking their exams without ever having passed a single subject. Girls who later want to become teachers can do so, regardless of whether they have passed any subject or succeeded in the national exams. The failure rates, and the lack of concern about them, suggest that education for girls was primarily viewed as a social interlude before marriage, while boys' education was promoted because "men are bred to lead, therefore they need Western skills" (p. 13).

In spite of a cultural pattern restricting women's activities and roles to the household, access to economic uses for education appear to lead to long-term changes in both women's status and the social impact of their education.

However, when economic necessity combines with the impact of current Western values in cultures with traditional Muslim beliefs to force women out of their exclusively domestic roles, there is evidence that girls' education may have greater social impact. Kamphoefner (1987) reports that current economic conditions in Egypt appear to be earning a change in attitudes about women working outside of the home. While traditionally it was considered shameful to the husband if his wife was employed, this attitude has become less dogmatically held as a second income becomes more essential. Educated women are gaining in respect. They are seen as more desirable candidates for marriage, as they are perceived as being more able to find employment and provide more income for the family. El-Sanabary (1989) reports that employment conditions for women in Egypt have been extended to include quite liberal and often mixed work environments relative to the lack of such opportunities or strictly gender-segregated ones found in Saudi Arabia.

The current educational status of women in Egypt is somewhat ambiguous. At the primary school level, the proportion of girls enrolled has increased one and a half times faster than that of boys since 1953 (Nasser 1987). Most of that gain, however, has been experienced in urban areas and, in rural areas, nearly 85 percent of women were still illiterate in 1981. El-Sanabary (1989) credits the rural/urban disparities to the concentration of educational facilities in the more affluent

urban areas and the "cultural lag" among rural inhabitants, as well as the perceived irrelevance of formal education to agricultural activities. While the actual uses of education for women, especially poorer women, in Egypt are still limited, there are a number of indications that the real impact of their education will be felt in the next generation. Poorer women with an education are especially desirable for marriage because they are able to help their children with homework. Poorer households often cannot afford the private lessons considered essential to children's success in school in Egypt (Kamphoefner 1987). When there is no one at home with enough education to provide lessons, children frequently drop out of school. While in rural areas of Egypt where traditional cultural constraints are stronger and opportunities for employment less, mother's education was found to be significantly related to their children's current participation in schools. (Cochrane, Mehra, and Osheba 1988). Cultural constraints on Egyptian girls have been found to decrease parents' willingness to educate them as distance to school increases, as is frequently found in rural areas (Robinson, et al 1986).

Lorfing and Abu Nasr (1985) found that daughters of educated mothers in Egypt held less stereotypical attitudes about women's roles than did daughters of uneducated women. El-Sanabary (1989) reports that when mothers' education leads to employment, they act as role models for their daughters and alter their sex-role stereotypes. Bach et al (1985) found that adolescent daughters credit their mother's praise and self-confidence building for their educational achievement. There is a significant correlation between the reported use of praise and self-confidence creating behavior and the amount of education mothers had achieved, with the most significant differences in the lower classes and with mothers with only limited education. In addition, educated women can have an impact on the increased education of women outside of their own household. Numerous women's social welfare and feminist organizations in Egypt have sponsored education and training projects for girls and women (El-Sanabary 1989). Most have offered classes in literacy and income-generating skills, provided child care for children of working mothers, promoted health education for women, and even offered housing for single mothers and their children.

The role that culture plays in how education will affect women's status and the degree to which women will be able to use that education to have an impact on their societies is often avoided because culture has too often been used as an excuse for why expected results have not been achieved. However, in spite of a traditional cultural pattern restricting women's activities and roles to the household, access to education and the possibility of economic uses for that education in Egypt appear to be able to lead to long-term changes in both women's status and the social impact of their education.

3.5 SUMMARY

3.5.1 Limitations of Existing Research on the Social Impact of Education on Women

Throughout this review of the literature on the social impact of women's education, there have been several consistent threads of interrelationships that cannot be recognized in either macro-level quantitative correlation or micro-level qualitative studies. While the qualitative research can recognize and isolate significant differences between subgroups such as rural and urban differences or variations according to culture, they cannot supply much information about why those differences occur. On the other hand, ethnographic studies can address how education has an impact on the lives of women, how changes caused by education have an impact on the larger social context, and how different socioeconomic classes react to education, but it can do so only within either an urban or a rural context and can contrast only local cultural differences.

However, the most significant shortcoming of both types of data is the lack of a longitudinal

perspective. In the case of education this is extremely important as the social impact of a girl's education will continue throughout her lifetime. The long-term impacts of the changes set in motion by girls' education are, in addition, interrelated in an intricate manner that neither quantitative nor qualitative studies alone can describe.

For example, the impact of women's education on their fertility, as Schultz (1989) has suggested, could lead to mothers needing less child care from their older daughters, which, in turn, could mean increased opportunities for these daughters' schooling. In a study conducted among agricultural laborers in India, Caldwell, Reddy, and Caldwell found an interrelationship among parental education, which led to a desire to educate children, women's independent incomes, and fertility. Families reported that the number of children they could afford to educate was restricted, especially over a limited number of years. Pregnancy and caring for infants reduced the mother's earning capacity, increasing the difficulty in financing children's educations. Many respondents insisted that they were able to keep children in school only because of the mother's decision to be sterilized. Gulati (1985), in India, and Greenstreet (1990), in Ghana both found a relationship between decreased child mortality and decreased fertility. In both studies increasing confidence in the survival of children has led mothers to an increased willingness to use birth control. These studies of decreased fertility all indicate how other social impacts of women's education, such as increased health of children, increased desires to educate children, and increased participation in waged employment, interact with one another to heighten the impact of altering the number of children born.

3.5.2 How Education Changes Girls and How Social and Cultural Factors Influence the Impact of Those Changes

The reappearing threads of association that have emerged from bringing together a wide range of research on the social impact of women's education are not conclusions but, instead, indications of how the impact of educating girls is affected by a number of social and cultural variables. Education does alter girls' skills, such as literacy and numeracy, and does give them specific knowledge, such as information that leads to improved health care. Education could, should, and probably does alter women's self-confidence, self-esteem, and notions about their role in society, but there has been too little research in this area to confirm whether or not this occurs and under what circumstances. This is unfortunate as this may be the area of learning from which the most social impact is realized, considering the following constraints upon women using the skills they have gained during schooling. Education, in most cases, does lead to a desire to have fewer children and to educate those children. Education also leads to a preference for urban life and opportunities. But the degree to which the girls who acquire these new attitudes act upon them to alter social realities are also influenced by the following social and cultural factors.

- Increases in women's decision-making power due to education may play an important role in how the impact of girls/ education is realized. However, the amount of research into this process is still extremely limited and inconclusive.

- The availability of income-producing activities, which enhance women's decision-making power and status, may be a necessary ingredient that interacts with the skills and attitude changes produced by education in order to produce social changes. The accumulation of evidence suggests that decision-making power is generated more frequently by economic power than by education alone. How women's education, independent income, and status interrelate is the most consistent and intriguing of the interconnections running throughout the literature on the social impact of women's education.

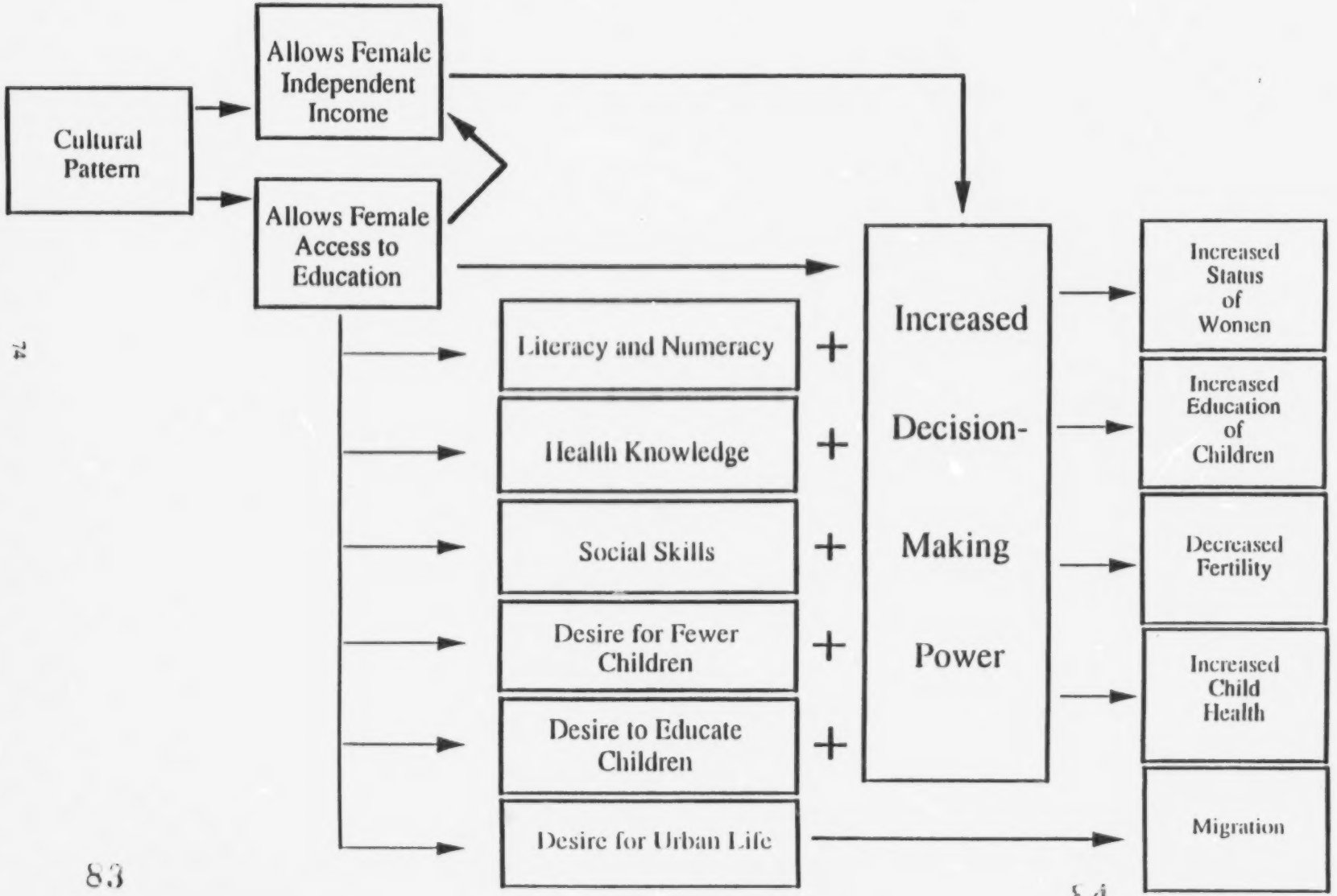
- While rural and urban distinctions are the most often reported variation in the literature examined, which is why the report was organized along those lines, there is little indication that they are the most important differences. The availability of an independent income for women appears to be a far more significant difference than rural/urban distinctions.

- The literature suggests a variation in the social impact of education on girls of different socioeconomic backgrounds. While high- and middle-class girls appeared to demonstrate more beneficial consequences as a result of their education in terms of their ability to use it to secure jobs and increase income, the actual relative power and status changes in their lives as a result of schooling may, in fact, be less than those experienced by working class women.

- The cultural context in which the girls receive their education influences their ability to use what they have learned and the type of education that they receive. When traditional cultural patterns include female control of resources and activities in the public sphere, then only access to education and opportunities to earn an independent income appear to be necessary for women to increase their status and have a social impact. The social impact of women's education is restricted not only if access to education and economic opportunities are limited, but also if traditional cultural patterns limit women to domestic activities.

Figure 9

Interrelationships Among Girls' Primary Education, Culture, and Social Change



CHAPTER FOUR

CONCLUSIONS AND IMPLICATIONS FOR POLICY MAKERS

4.1 CONCLUSIONS

This report gathers and analyzes many of the studies on education's direct and indirect positive effects on the economic and social well-being of women, their families, their communities, and their countries. The overall impact of primary education is the result of the interplay of economic and social outcomes. Primary education enhances women's ability to perform the multitude of economic activities in which they are engaged and to learn new methods that vitally contribute to economic development and the economic well-being of their families and themselves. Mastery of literacy, numeracy, communication, and information processing skills prepares women to be more productive in the formal and informal sectors of the work force as well as at home. With these skills, women are more likely to assume new economic activities, search for jobs, or engage in their own microbusinesses. Women thus contribute more, although they may not always realize these benefits in terms of real wage earnings or in earnings equitable to those earned by men. These contributions are even more significant in countries experiencing economic recessions.

Increases in women's decision-making power due to education may play an important role in how the impact of girls' education is realized. It is in this area, especially, that the economic impact is closely linked with social impacts. The availability of income-producing activities may not only enhance women's decision-making power and status, but also may be a necessary ingredient that interacts with the skills and attitude changes produced by education in order to produce social changes. The accumulation of evidence suggests that decision-making power is generated more frequently by the combination of an independent income along with primary education. Primary education not only provides girls with literacy and numeracy skills but also leads to desires for fewer children and the education of those children. In addition, schooling passes on skills that women can use to improve the health of their families. Where women's lives are restricted to domestic activities, school can also provide an opportunity for the development of greater self esteem, confidence, and new communication abilities.

More specifically, girls' primary education generally has the following impact on women:

- Girls' primary education results in more active participation by women in the labor force, whether in rural or urban areas. The level of participation, however, is influenced by a variety of factors including age, culture, type of industrialization, gender discrimination, and women's access to complementary resources such as land, capital, and technical training.

- Girls' primary education results in better skills and thus are more able to learn new methods of operation that make them more productive members of the labor force. But such potential is only realized if the employment opportunities exist for women. These opportunities are afforded if broad-based rural development strategy, industry dispersal, and gender discrimination in hiring women especially in semi-skilled and skilled jobs are addressed. Moreover, the type of industry promotion–whether labor-intensive or not, sex–stratified or not, sustainable or not– and the type of working conditions i.e., sex discrimination in promotions, health, and safety environment under which

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not, sustainable or not– and the type of working conditions i.e., sex discrimination in promotions, health, and safety environment under which women workers operate–determine whether employment leads to higher wage earnings and to longer productive life.

- Girls' primary education can lead to increased access to credit and to vocational and training programs among those women who are engaged in informal sector activities. Girl's primary education can also lead to higher profits especially in self-employed and informal sector activities that are more demanding in literacy, numeracy, and problem-solving skills. Education may not make as much of a positive impact when women are engaged in traditional activities that primarily rely on hands-on experience or when the activities in which they are engaged are constrained by lack of capital resources.

- As principals in home production activities, women with education increase their production of nonmarketed goods, leading to improved childrearing practices, better family health, greater consumer choice efficiency, and lower fertility.

- There may be a variation in the social impact of education on girls of different socioeconomic backgrounds. While on the one hand high- and middle-class girls appear to demonstrate more beneficial consequences as a result of their education, especially secondary and tertiary, in terms of their ability to use it to secure jobs and increase income, on the other hand, the actual relative power and status changes in their lives as a result of schooling, may, in fact, be less than those experienced by working-class women.

- The cultural context in which the girls receive their education influences their ability to use what they have learned and the type of education that they receive. When traditional cultural patterns include female control of resources and activities in the public sphere, then only access to education and opportunities to earn an independent income appear to be necessary for women to increase their status and have a social impact. The social impact of women's education is restricted not only if access to education and economic opportunities are limited, but also if traditional cultural patterns limit women to domestic activities.

The positive outcomes of girls' primary education are therefore conditioned by the prevailing economic, social, and cultural environments. In particular, the degree to which the basic skills and attitude changes produced by education enhance social and economic development largely depend on several factors. Age; type of economic policies; distribution of resources, especially land and credit; gender discrimination; cultural and social norms; and socioeconomic background are key factors that affect the manner and degree to which women use their education-acquired skills.

4.2 FURTHER AREAS OF RESEARCH

In addition to what the literature on girls' education has documented about economic and social impacts, it has also provided a map of areas that need more or a different type of research. One of the most significant shortcomings in the literature examined has been a failure to address the diversity of activities that can be affected by women's education. The evaluation of social impacts has focused upon the benefits of a girl's education that are measured in terms of her reproductive roles in society, i.e., fertility rates, child health, and child education. Very little research has been

devoted to the range of other roles women play in society and changes education makes in how those roles are performed. The evaluation of economic impacts has focused upon labor force participation that is measured in terms of market and monetary benefits. More research needs to be directed toward the changes education makes in the diverse economic activities women were engaged in before entering into statistically measured market activities, and/or instead of those activities.

A number of specific areas where research is needed have been isolated by this review of the existing literature on the economic and social impacts of girls' primary education and they are listed below. Many of these areas have been overlooked because they are not easily quantifiable, which suggests that not only is more research needed, but that different types of research may be needed.

- There is a need to examine in greater detail the differential impact of the structure and content of schooling on women's social roles, their economic production, and the impact they have on their society.
- There is a need for better research on the impact of women's education in rural areas, where the current methods of measuring economic productivity and shifts in social roles are defined in such a way that they often fail to capture changes that are occurring.
- There is a need for research to examine the differential impact of education on women of varying socioeconomic classes. For example, a clear distinction should be made between women's participation in self-employed economic activities, which require a substantial capital base, and the informal sector activities of poorer women. As another example, a primary school education may have relatively greater impact on the decision-making power and status of low-class than higher-class women.
- There is a need for systematic analysis of educational impacts on women's access to formal and informal credit sources, as most of the current evidence is anecdotal.
- There is a need for studies on increases in women's relative decision-making power that are associated with increased education, acquiring an independent income, and the interaction of education and independent income.
- There is a need for research on how education affects women's capacity to engage in more diverse economic and social activities.
- There is a need for more systematic and rigorous analysis of how the presence of distortions in the labor market, such as gender discrimination, affect the measure of education's economic impact.
- There is a need for research that focuses upon the social changes education makes in girls, especially its impact on their social skills, self-confidence, and sense of efficacy.
- There is a need to incorporate the nonmarket or nonmonetary benefits of women's education into the rate-of-return approach to measuring economic benefits.

- There is a need for research into how education leads to increases in women's status through changes in existing economic and social relationships.

In addition to areas of change that are not examined sufficiently by the existing research, the methodologies that are primarily used focus upon outcomes rather than processes. Statistical correlations among quantifiable measurements, such as wages earned, years of schooling, and number of children, provide evidence of changes but do not include information about how those changes were achieved. A lack of information about the process of education's impact can lead to assumptions that distort the meaning of the reported outcomes. For example, almost all of the studies examined assumed that women who are not participating in the labor force are dependent on their husbands or parents and are engaged only in household activities, which ignores the income-producing activities of most poorer women. If measurement of education's economic impact is limited to increased involvement in the labor force, then increased productivity in nonmarket activities is never measure. A lack of information about the process of how education creates changes also limits understanding of what are the conditions in which education can produce significant impacts. For example, insight into variations in the relationship between girls' education and increased infertility is provided through an examination of women's ability to make fertility decisions.

Longitudinal research was seldom found in the literature examined, in spite of the fact that it could lead to data in areas of impact frequently ignored and data about how the process of impact occurs. Longitudinal studies allow intermediate changes to be examined for their impact on long-range goals. For example, while rural women's education may initially show little economic or social impact, increased productivity in nonmarket activities may increase the well-being of the entire family over a period of time, and changes in expectations, knowledge, and decision-making power may increase the education and achievement of their children. In addition, because longitudinal studies are relatively open-ended, the outcomes of increased education will be measured without being limited to what other variables that information is available about. As with an ethnographic study, research can be influenced by the actual circumstances and relationships discovered rather than by predetermined expectations. A third advantage of longitudinal studies is that they better allow for the examination of the interrelationships among a number of variables. Education leads to both economic and social changes; social changes affect economic outcomes, and economic changes affect social outcomes.

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